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NOTES ON THE HISTORICAL BACKGROUND OF VISUAL EDUCATION

MANSON MILNER BRIEN
THE SAINT LOUIS COUNTRY DAY SCHOOL

Many histories of visual education start with the "Orbus Pictus" and then skip blithely to the twentieth century. Mr. Brien's study of the use of visual aids from the Middle Ages on is not only enlightening but is a real contribution to the history of visual instruction. We need more studies of this type.

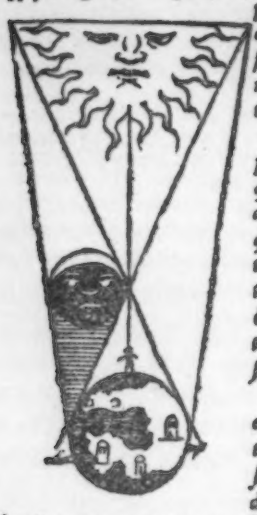
IT is an unusual thought, yet none the less true, that Visual Education as a teaching method reached an apogee during the Middle Ages. Then, as at no other moment in history, were all the resources of art devoted to instructional purposes. The sculpture which decorated the porches and screens of the great cathedrals was, itself, primarily educative. Not even the most unlettered, after seeing the gleeful devils speeding their prey to the cauldrons, could doubt the fate of sinners on the Day of the Last Judgment; nor could the simplest child fail to understand the life of Christ as depicted upon the choir screen at Chartres.[1] Stained glass, also, furthered the same ends. Although the symbolism in this medium is frequently difficult to grasp without a thorough knowledge of the Bible and of hagiography, it is clearly evident that the instructive element is always omnipresent. Indeed the entire scheme of gothic architecture was directed toward a concrete demonstration of theological mysteries.[2]

Of equal importance with sculpture and glass was the art of painting. Unfortunately the wear of centuries has destroyed the great mediaeval murals, but the miniatures on vellum, ivory or wood remain; and miniatures always taught! No finer examples exist than those from *Les Très riches heures du Duc de Berry,*[3] which depict the activities of the months and seasons with a detail that is frankly amazing. So during an age of faith, when the paramount ideal was an exposition of Christianity, when manuscript books were few, possessed only by scholars and by the extremely wealthy, it is well to note the practical dependence upon the "visual" alone as the chief means of instructing.

At no time did the invention of printing put an end to this stream of reliance upon the visual. Indeed the woodcut had been perfected some years before the birth of movable type, and

1 Adams, Henry, "Mont-Saint-Michel and Chartres," 16th ed., (Boston, Mifflin, 1926), Ch. 4 and 5. An excellent treatment of the theories expressed in this first paragraph.
See also: Walker, J. Bernard, "Cathedrals of the Old and New World," "National Geographic," 42: 89 [1922].
2 Adams, op. cit., loc. cit.
3 "Les Très riches heures du Duc de Berry," (Veuve, Paris, 1940), no. 7, vol. 2 [April-July, 1940].

these two procedures supplemented each other in a truly remarkable manner.[4] It is quite apparent, however, that after the middle of the Fifteenth Century, the old arts of sculpture and stained glass visibly declined. But, conversely, the printed book and its illustrations steadily improved. Nowhere was there a distinct break in the continuity of visual teaching. Naturally the precepts of faith maintained their predominance. The printed books of the Hours continued to be as pictorial as their predecessors in manuscript and as literature became more and more secular, the same cuts began to serve both for an *Amadis* and for *Les Heures*.[5]



PASSIONES

ecentrici & epicicli. 29. menuæ, sed in auge ecentrici & opposito augis epicicli triginta sex, semper tamen quæ est proportio quadraginta octo ad quadraginta septem ea est motus Lunæ in hora ad diametrum suam usi. alcez.

Quare sequitur quòd possibile sit ut etiam quandoq; Solis eclipsis accidat universalis tum quam tamen notio aliter apparere potest ratione diversitatis aspectus, ut totus Sol toti terræ universi. Later eclipsetur.

Dum Sol in auge ecentrici fuerit, diameter umbræ in loco transitus Lunæ se habet ad diametrum Lunæ usitatem, sicut tredecim ad quindecim. Excessus autem eius dum Sol est in auge super diametrum eius, cum Sol alibi fuerit in ecentrico, decuplus est ad differentiam motuum Solis in horis quibus dum est in auge atq; illo loco alio mouetur.

PLATE I.
WOODCUT AND TEXT FROM THE NOVAE THEORICAE PLANETARUM OF 1537
Photograph by H. E. Young

During the first three centuries of bookmaking the woodcut, etching and engraving constituted the chief mediums of illustration. The woodcut is purely a relief print from a wood block upon which the cutter worked from black to white, and the result fitted harmoniously into the printed pages.[6] As the designs became increasingly elaborate, the skill of the forme-cutters kept pace, and the woodcut ended by becoming a richly shaded print similar in many respects to metal work. Etching is done upon a

NATVRALIS LIBER I. 33

Axis in pentrochio, 1. est multitudo vectium A B C, *Axis in pentrochio.*

uni cylindro sive axi D E, circumpositorum multitudo.

Et cochlea 2, est planum inclinatum A B, circum cylindrum C D volutum, & vecte gemino E & F instructum. *Cochlea.*

Cuneus verò 3, est planum inclinatum geminum A C, & C B. *Cuneus.*

Sciendum autem est, quòd in usu cunei A C B situ mutet N D, ab M in A B, brachio propulsi, non tantum hoc effi- cia-

PLATE II.
WOODCUT AND TEXT FROM THE PHILOSOPHIA NATURALIS OF 1654
Courtesy of the General Library of the University of Michigan

4 Audin, Marius, "L'Histoire de l'imprimerie par l'image," (Paris, Jonquières, 1928), 4 vols.; 1: Figs. 49, 50 and 51. See also Plate I. and Poortenaar, Jan, "The Art of the Book and its Illustration," (London, Harrap, 1935), p. 146.

5 Ibid., pp. 50-53; a fine example of the transfer of cuts.

6 See Plate I.

metal plate, which is varnished, the lines scratched in, and then eaten out by acid. Two variants of this process, the Aquatint and the Mezzotint, became prominent in the Eighteenth Century. In the former the varnish is mixed with powdered resin which gives the plate a porous background that reproduces well and provides a very fine grain. For the Mezzotint a roughened plate is employed. This furnishes a plain black surface which is then scraped to allow the various lighter shades. Engraving, of course, is simply bare metal drawing, and its use as a visual aid is almost synonymous with the invention of printing itself. Maps for printed books were engraved as early as 1478.[7] Of all these methods the woodcut proved the most advantageous in the earlier printing. It could be set directly in the formes along with the type, and the text and its illustrations could be run off together. The other procedures all required separate presswork. Thus the woodcut became the most common among visual aids.

Historians of Education have commonly credited John Amos Comenius and his *Orbis sensualism pictus* as being the fount of visual instruction in theory and in practice. Actually nothing is further from the truth. The *Orbis pictus* may or may not have been the first illustrated book devoted exclusively to children, but in either case, Comenius employed a technique and an educative medium which had been in common use since the beginning of printing. To be convinced one need only compare the reprints from the original copper plate engravings of the 1658 edition[8] and their usage in a text with the procedures of Henri Regius in his *Philosophia Naturalis,* published by the Elzevirs in 1654,[9] four years before Comenius; or with the *Novae Theoricae Planetarum* by George Peurbach,[10] published in Venice in 1537, nearly a century and a quarter earlier. There can be no doubt that the steady development from the earliest illustrations in the middle Fifteenth Century to the skilled technique of the Elzevirs, shows conclusively that Comenius prepared his *Orbis pictus* according to a pictural method already as perfect as that of a modern textbook.

Indeed the Seventeenth Century witnessed an exceedingly widespread use of the visual aids. Medicine, diplomatics and paleography, history, geography, travel, mathematics, physics and astronomy, are but a few of the fields wherein there are enough tomes extant today to attest the common employment of such illustrations as a means of learning. Generally these volumes dealt only with scholarly subjects, and were written for the mature student, but the elementary schools of the period did not lag far behind in putting such ideas into actual practice.

The great moralist of Jansenism, Pierre Nicole, a contemporary of Comenius, propounded the theory that children should be taught through

7 Poortenaar, op. cit., p. 152.
8 Comenius, John Amos. "Orbis pictus," (C. W. Baardeen, ed. and pub., Syracuse, N. Y., 1887), p. iv and the text.
9 See Plate II. Regius, Henricus, "Philosophia naturalis," 2nd ed., (Amsterdam, Elzevir, 1654).
10 See Plate I. Peurbach, Georgius, "Novae theoricae planetarum," (Venice, 1537).

their senses. Instruction in a new subject should always be given by means of an appeal to their sight and hearing. He developed his methods in the Jansenist schools of Port-Royal, where in the history and geography classes, maps, pictures, globes, flash-cards and realia were constantly employed.[11] However, the destruction of Port-Royal by the government of Louis XIV brought these schools to an end before they had effected any profound methodological advances.

More fortunate were the schools of the Oratory. After the Jesuits, the Oratorians were the most powerful teaching order in France, and indeed, upon the expulsion of the former in the Eighteenth Century, they practically controlled the French educational system until the days of the Revolution. The methods of the Jansenists were more or less in vogue among these schools, despite the fact, that as a whole, the Oratorians remained considerably closer to the more formalized ideals.[12] The Abbé Nicolas Lenglet du Fresnoy (1674-1755) was a product of their training, having performed his higher studies at the Collège de St. Magloire in Paris.[13]

A somewhat inept politician, Abbé Lenglet gained renown as an historical and geographical methodologist and as a critical editor. Although in the course of his long scholarly career, he devoted but four years to the writing and editing of children's textbooks, the education of youth was constantly on his mind. Lenglet claimed, not without reason, that children learn more readily when they employ their ears, their eyes and their hands. More specifically he applied this theory to chronology, which in his age was a subject equally as important as history itself. He had always placed chronological tables in his histories, but for instructing school boys he had these tables made up into large folio sheets. As for their use, in 1713 he wrote:

"You must place them before their eyes so that a single view of these tables may arrange in their minds the histories about which you are speaking."[14]

Nearly twenty-five years later, in 1736, he reiterated his thought:

"I do not wish to embarrass their replies by a detail of chronology. I prefer to bring it to their eyes rather than to their memory. That is what I practice by means of these tables."[15]

Three lasting pedagogical results stemmed directly from Abbé Lenglet's ideals. First: chronology became a subject of purely secondary value; second: the fashion of memory work for memory's sake was severely weakened; and third: comprehension by means of visual contact became increasingly important as a teaching method in the classroom.

In the realm of geography Lenglet placed even more reliance upon such aids. He stated in 1713:

"As visible images make a great impression on young people, above all, you

11 Compayré, Gabriel, "Histoire critique des doctrines de l'éducation en France," (Paris, 1880), 2 vols.: 1: 269 and 283.

12 Barnard, Howard C., "The French Tradition in Education," (Cambridge, England, 1922), p. 164-166.

13 For information on Lenglet du Fresnoy see: Brien, Manson Milner, "Papers of the Michigan Academy of Science, Arts and Letters," 18: 457-478; 19: 427-439; 20: 497-504; 23: 507-516; and the "Romanic Review," 25: No. 4; 378-380. A paper on the educational theories of Abbé Lenglet is now in preparation.

14 Lenglet du Fresnoy, "Méthode pour étudier l'histoire," (Paris, Coustelier, 1713), 2 vols. in-12; 1: 348.

15 Lenglet du Fresnoy, "Principes de l'histoire pour l'éducation de la jeunesse," (Paris, de Bure l'aîné, 1736-1739), 6 vols. in-12; 1: xv.

must pay attention to them, by showing them (the children) in a few pictures, the histories about which you were speaking . . . which represents them in a more lively manner. This method will not fail to touch them where they are most sensitive."[16]

Again, thirty years later in his *Méthode pour étudier la géographie,* he advised this procedure:

During the lesson have, "The pupil give some attention to locating on geographical maps, the places marked. . . . Then the eyes act much more than the mind. . . . This method possesses a double advantage. It serves not only to fix the imagination, but it also has the pleasure of removing from geography a repulsive dryness."[17]

The truth of this last statement may be forcefully realized by recalling for a moment that eighteenth-century maps were not the dried-up colour spreckled affairs of today, but handsome works of the engraver's art, decorated by ships and dragons, winds and stars, trees and mountains. They would hold any pupil spellbound.

Abbé Lenglet died in 1755 and it may be said without favour, that his ideals represented the philosophical peak of visual education in the Eighteenth Century.

Actually the age immediately following the death of Lenglet was very much aware of the potentialities of an illustrated context. The *Année Littéraire,* a critical review edited by Elie Fréron between 1754 and 1769, discloses, by means of a random sample, the extent to which textbooks or other volumes having visual aids were published during those fifteen years following the middle of the century.[18] As the following table shows, over fifty percent supplemented textual material in this manner:

Subject	*No. of books published 1754-1759*	*Illustrated*
Pedagogy	27	12
Geography	25	13
History	8	4
Natural History	6	5
Physics	2	2
Medicine	1	1
Geometry	1	1 (diagrams)
Totals	70	38

It is not surprising, of course, to find that the books in medicine, physics, geometry and natural history made complete use of such material. But it is quite amazing to realize that nearly two hundred years ago, half of the new volumes in history, geography and pedagogy had been adapted to methods of visual instruction. Certainly the Eighteenth Century did not lag behind its predecessors in this respect!

Indeed visual education today is neither a fad nor a fetish, but the culmination of consistent progress throughout eight hundred years. Modern inventions and modern techniques have in no way altered its fundamental philosophy. Rather they constantly present an ever widening opportunity which requires, perhaps even demands, a thorough investigation on behalf of teachers and students in every field, if we are to be true to our heritage.

16 Lenglet, "Histoire," op. cit., 1: 347.

17 Lenglet du Fresnoy, "Méthode pour étudier la géographie," (Paris, de Bure l'aîné and Rollin fils, 1742), 7 vols. in-12; 1 [part I]: 22-23.

18 I acknowledge with gratitude the kindness of Messrs. Gravit and Prator of the University of Michigan for allowing me to use their index (now in preparation) to the reviews published by Fréron. Their work will supply a long felt need.—M. M. B.

AUDIO-VISUAL AIDS AND THE DEMOCRATIC PROCESS

ETTA SCHNEIDER
TEACHERS COLLEGE, COLUMBIA UNIVERSITY

The democratic way of life implies among other things understanding and intelligent coöperation. Miss Schneider makes a strong plea for the application of democratic ideals to a visual instruction program.

THERE is now a great need for self-appraisal of the ways in which we carry out the tasks of everyday living. If democracy is to grow stronger with the years, it can do so only by extending the spheres in which democratic practices operate. Education today has become aware of the fact that democracy is more than citizenship in a political economy that sets us apart from dictatorships and monarchies. We know that democracy is a *way of living,* a way of conducting our affairs with one another so as to foster mutual respect and facilitate collective living. Nowadays the home assumes new proportions as an important factor for promoting democratic living; similarly the factory and business organization; and, of course, the school.

If we accept the objectives of education that will promote better living in our kind of democracy, we must shift the spotlight of critical appraisal from one aspect of mutual relationships to another. Why not a glance at audio-visual education as it relates to the larger, broader purposes of education in general.

Let us survey the field in five of its aspects, in the light of criteria that are compatible with the broad aims of education (appended). The guiding principles set forth here are merely suggestive. Many other ones can be added. The function of this article is to sensitize the reader to the need for self-appraisal rather than to propose a blueprint for all to follow.

We may contrast two types of courses now available to teachers and prospective teachers. In one, the course has been based on certain "minimum essentials" laid down by the state department of education or the college administration. Lectures, demonstration-lectures or demonstration lessons with children constitute the procedure of the course. Students may or may not have a chance to handle the materials or equipment described in the lectures. Even if they do handle them, the students are working from directed assignments that will determine the grade for the course. The instructor, who is also a teacher of other subjects, has little time to give to keeping informed of new trends in general education. He must meet the requirements set down for him.

Such a course is characterized by its predetermined subject-matter-to-be learned, its failure to help students in meeting their own problems and needs, to promote creative expression according to individual abilities, to work in small groups on common problems, and the like. On the other hand,

there is the teacher-training institution or graduate school that attempts to incorporate audio-visual aids in all of the offerings of the institution, providing a separate course only as a means of bringing problems and needs into sharp focus. The instructor has a plan of procedure, but it is easily adapted to serve the needs of the group. Students are helped to develop their own guiding principles, their own criteria for selection and evaluation of outcomes; they carry on activities that will help them now; they work alone and in small groups; they have opportunities to try out materials with children under normal teaching conditions; they coöperate with producers curriculum workers and others who have problems common to their own. At the conclusion of the course, the students and instructor look back at their year's work and make suggestions for self-improvement and for improving the course offering.

Many books are now available on the democratic administration of education. We have no evidence to show that such policies are influencing those who direct our programs of audio-visual education. We still hear persons at teachers' meetings describe how "I" carry out our program. "*I* look over the catalogs. . . . *I* think films have been neglected. . . . Last week *I* showed films on vocational guidance in our school. Next week it will deal with foreign languages." By way of contrast, here is an account of an actual school program, carried on as a project in graduate study by Florence Taylor at Teachers College, Columbia University.

This teacher worked in a modern, integrated type of elementary school. She realized that motion pictures and other new-type materials were not being used as often as they might. From her own experience she understood that the chief obstacles were lack of information as to sources and costs, and the inability of the teachers to get materials at the time they were most needed. With the approval of the other teachers and the principal, she undertook the development of an organized program for the school as her graduate study. She made a survey of the materials available in the school, in the community and from commercial agencies. She began a file of information. She became acquainted with organizations in the field and with distributors. During this time she was noting the units of work going on in all of the elementary grades. She talked to the teachers over the luncheon table or at teachers' meetings. Sometimes she would ask them, "What kind of films would you want, if it were possible for me to get them for you?" Or, she would drop a note in the mailbox of a teacher, saying, "Would you like to see this film, which appears to fit in with what your class is studying?" Teachers and students participated in the previewing sessions to decide whether or not the film in each case was worth the time of the children.

Teachers willingly coöperated in this project. The evaluation forms were satisfactorily filled out for each film, each time it was used. At the end of the year, the teacher-in-charge prepared a composite evaluation for the card catalog. Children's evaluations were included. Here, for ex-

ample, is how a second grader evaluated a film on beavers. "I liked the film because it was very interesting when beavers built dams and water could not flow out. Something else I learned, how they can have so many sharp teeth to make a tree fall down. I can't remember all I learned but I learned a lot and I would recommend this picture to other children."

As proof of the soundness of this method of initiating an audio-visual aids program, we find that the program has been continued in a manner that is satisfactory to all, even though the teacher has left the school. Her system of keeping records and of enlisting the coöperation of all in the program is being carried on by her successor, also a classroom teacher. Now the teachers find that they can more readily ask for films that involve a rental charge because the principal understands that these requests are the result of careful study. The program has stimulated group activity among the teachers in other fields of study. This is further testimony that it was the democratic process that succeeded, rather than the details of the program.

Again we may examine contrasting practices. In one school system the superintendent has enrolled in a cooperative film program. Each of the schools is entitled to have each film for one of the five days allotted to the community. On that day, the classes in each school are scheduled to see all of the films that have come. In one school, for example, first the second, third and sixth graders were brought into a classroom where three films were shown: one dealt with the work of water, another showed the adaptation of animals to their environment and the third was a travel film. The principal of the school admitted that the primary children might not readily understand all the material in the films, but that was part of their training for discipline. At the end of the showing, these children filed out and the other grades came in to see the same films. In none of the classes, according to the teachers' own statements, was there to be any discussion of the things seen in the films.

There is little comfort in the knowledge that this school system was making available new-type materials to its children. These children might have spent their time more profitably playing outdoors than sitting in a stuffy room and listening to a commentator tell in words beyond their comprehension about things that were not clear, even from the pictures. Worse yet, the children who were intrigued by the pictures of animals and their young had no way of telling about their reactions or of finding out things that seemed important to them.

In another school, the third grade children were studying about electricity, as the result of their efforts to wire a lamp. They wanted to know where the power came from, and they asked their parents where the nearest power-house was. One of the parents found in her monthly electric bill an announcement of a film on where electricity is made. The student brought the announcement to school. The teacher followed the lead and sent for the film. At the preview, the teachers

all insisted that the film was too technical and unsuitable for third graders. The third-grade teacher, however, realizing how disappointed the student would be, decided to use it with skillful preparation in advance. The teacher was pleasantly surprised to find that the children wanted to see the film, not once but twice, and found in it much more than she had anticipated. They had visited a power plant, read about electricity and made the necessary materials for their own lamps. Thus, although the film took them to parts unknown, their background was ample for an understanding of *the things they wanted to find out.* Of course, there must have been many concepts that were too mature for them. But those children took from the film what they wanted and felt satisfied.

Parents, student, teacher all coöperated in finding the film. Teacher and students together helped to evaluate it. The experience was satisfying because it helped to provide a basis for coöperative action in the solution of a mutual problem.

In answer to the question which many adults raise about children's ability to comprehend certain "difficult" concepts, we can only say that we have not tried hard enough to find out. We have tried to prevent children from having experiences which might have been challenging and thought-provoking. Only by a deliberate quest on the part of children and their teachers can we ever know. Difficulty of comprehension is relative, depending on the past experience of the children and the motivation that exists for finding out.

In the field of audio-visual education there is an increasing number of organizations that exist only by selling materials to schools. On the other hand, schools recognize that many of the materials that modern education makes necessary must be purchased from commercial agencies. On the basis of an understanding of the need of one for customers and of the other for producers, there can be worked out a satisfactory arrangement of production. The producer needs the guidance of curriculum workers and classroom teachers in finding out what kinds of materials are needed and how they can best be organized. There has been an unfortunate tendency in the past for an organization to launch its product independently and to set up a strong sales campaign in order to impose itself on the schools. The trend is now in the right direction. Producers consult with representatives of education. They send out "preliminary, experimental" materials. Criticism and constructive proposals are used as the basis for further revisions. Schools become less distrustful of commercial organizations as the result of this kind of coöperation. Moreover, the schools are gaining in ability to translate educational theory into concrete form.

One important plea of producers of school materials should be inserted here. There is need for constructive accounts of ways in which the materials have been helpful. In the past we have been too prone to communicate with producers only when we had complaints to make. As we make known that we recognize what is good when we have it, we can command the

respect of those who serve us. Such is democracy at work in our field.

In order to summarize the ideas expressed in the preceding paragraphs and also to provide teachers with a method of evaluating a visual instruction program in terms of democratic procedures, the following checklists are offered. Each statement may be marked "excellent," "good," "fair," or "poor," in accordance with one's opinion as to the extent to which it applies.

GUIDES TO DEMOCRACY IN AUDIO-VISUAL INSTRUCTION[1]

I. Teacher Training

Ex. . . . Good . . . Fair . . . Poor . . .

The program of audio-visual instruction for a college should not be confined to a single course or group of courses. It should pervade the entire curriculum of the college. The separate course or courses should help to bring into focus the skills, techniques and information necessary for proper use of these new-type materials and the exact nature of each course should be determined by (a) the needs of the students and (b) the needs of education in general. In a college where education for democracy is recognized as the most important objective of public education, the course offerings will be flexible, dynamic and timely. The audio-visual instruction courses must also meet these criteria.

. . .1. All students have opportunity to handle and evaluate audio-visual aids in their general college work.

. . .2. All students are required to take a course in audio-visual aids for graduation or certification.

. . .3. Audio-visual aids courses and experiences are part of educational curriculum.

. . .4. There are laboratory facilities for carrying on individual work in map-making, photography, movie making, industrial arts, etc.

. . .5. The courses in audio-visual instruction:

. . .a) Vary in content and direction from year to year.

. . .b) Are based on persistent problems of the students at the time.

. . .c) Give opportunity for individual research, according to interest and ability.

. . .d) Give opportunity for group activity.

. . .e) The instructor is a guide or consultant, as well as a discussion leader.

. . .f) The students have an opportunity to apply what they have learned.

. . .g) There is an effort to enlarge the understandings and concepts in terms of the total educational program and in terms of social living.

. . .h) Instructors in other divisions of the college or school system work in close coöperation with the audio-visual instruction division.

. . .i) Standards of evaluating outcomes are determined by the objectives and needs of the broader educational program.

II. Administration

Ex. . . . Good . . . Fair . . . Poor . . .

The activities of the person charged with administering audio-visual aids for a school or school system should grow out of the conscious needs of the classroom teachers and the pupils. Efficiency in administration should be measured by the extent to which teach-

1 Patterned after H. B. Bruner's "Criteria for Evaluating Course-of-Study Materials," Bureau of Publications, Teachers College, Columbia University, N. Y., 1937.

ers' needs are being met, rather than by imposed standards of business efficiency.

...1. The administrator organized his program by consultation with the teachers.

...2. Teachers are consulted in the selection of materials for purchase.

...3. Requests for the consideration of materials may come from various persons in the educational system.

...4. Student coöperation is encouraged where possible.

...5. The budget is sufficiently flexible to meet unexpected needs.

...6. There is provision for a wide variety of materials.

...7. New-type materials are tried out in schools before extensive purchases are made.

...8. The administrator works closely with other members of the curriculum staff, supervisors, special teachers, etc. in recommending materials and in receiving recommendations.

...9. Teachers are encouraged to share experiences with one another, through intervisitation, demonstration lessons, written accounts, etc.

...10. Schools and teachers are encouraged to build up individual collections of school-made or bought materials. Where possible, such collections are shared with other schools.

III. Classroom Use

Ex. ... Good ... Fair ... Poor ...

The selection and use of audio-visual materials, similar to other school experiences, should meet the needs of the pupils and should be varied and flexible enough to meet many interests and abilities.

...1. Teacher and pupils are constantly seeking new experiences along the lines of their present study.

...2. The materials or suggestions presented by students are used.

...3. Pupils participate in collecting, cataloging and using materials.

...4. Pupils are trained to carry out routine tasks, such as setting up machines, calling for and delivering materials, etc.

...5. The time for using audio-visual materials is part of the regular schedule planned coöperatively by teacher and students.

...6. There is a continuing effort on the part of students and teachers to evaluate their common experiences in terms of their own purposes. The critical evaluation of the group with respect to visits, films, radio programs and the like is a regular part of the school program.

...7. The students and teacher plan for the construction or acquisition by some other means of materials not otherwise accessible.

...8. There is a variety of materials available to afford a variety of school experiences.

...9. All materials used at school are regarded by students and teacher as curriculum materials, and not as a novelty or frill.

...10. The teacher and students try out new techniques involving materials of all kinds, both old and new.

...11. There is opportunity for parents to participate in the selection and use of some kinds of audio-visual aids.

...12. The students have a chance to share their experiences with others. They may invite another class to see a film they particularly enjoyed, or they may show them an exhibit or collection that was especially brought for them.

IV. Production of Audio-visual Aids

Ex. ... Good ... Fair ... Poor ...

Materials and equipment made for

sale to schools will be based on a close understanding of the needs of the schools. Coöperation of teachers and students should be solicited before and after the development of the material. Schools should be willing to participate in such coöperation.

...1. The material is a justifiable part of the modern teaching program.

...2. The material serves a purpose not better served by less expensive aids.

...3. The material has been priced within reasonable limits.

...4. Teachers and curriculum workers have been consulted in the preparation stages.

...5. Teachers and curriculum workers have tried out the material with children.

...6. The producer has made provision for modifications or changes from time to time in the light of practical needs.

...7. The producer offers a follow-up service for schools purchasing his equipment so that there can be a mutual exchange of experiences and ideas.

TEACHING AMERICANISM THROUGH THE USE OF THE FILMSTRIP[1]

CAMILLA BEST
NEW ORLEANS PUBLIC SCHOOLS

One of the least expensive of modern visual aids is the filmstrip. Mrs. Best, who is Supervisor of the Department of Visual Aids in the New Orleans Public Schools, describes how the filmstrip may be used in the teaching of democracy.

I AM an *American.* I wonder how many of us in the educational field who are now gathered together here have a clear conception in our minds as to just what that means. Have you? For we as educators must have our own creed of democracy deeply embedded in our souls and in our every-day way of living if we are to help nurture and develop it in the lives of the young people with whom we are dealing every day. We hear all around us again and again the words, "Democracy is Education and Education is Democracy." This is indeed a truism, and to learn democracy, it must be lived in the daily routine of school life. It must encompass the avoidance of indoctrination, the encouragement of group-made policies, free discussion, responsibility for fellow-students, and the nobility of hard work.

When I first knew that I was coming to Atlanta, I conducted an interesting little survey all my own. As educators would come into my office, I put the question to them—"What is your philosophy of education?" Sometimes I would have the answer in one sentence, sometimes in a longer discussion, but the final answer in all cases was "To make better citizens to send out in the world." Having accomplished this much, I then followed it with the question, "In your school, how are you going about making these citizens to send out in the world, citizens who love, appreciate, and understand the tenets of democracy?" And again, perhaps not in the same words but carrying the same thought, they agreed that students in order to become intelligent, literate and civic-minded citizens must have access to reliable information and opportunity to clarified thinking.

I believe that we all realize to the fullest extent the serious need confronting us to bring home to our boys and girls in the schools the true blessings and responsibilities of living in this beautiful and free America. Every magazine we pick up has at least one article in its table of contents on this subject. The Educational Policies Commission has recently published a book, *Learning the Ways of Democracy.* How many of you have had the opportunity of reading an article in *Harper's Magazine* by Roy Hilton called "The Inner Threat—Our Own Softness"? In it Mr. Hilton deplores the fact that democratic energies have been turned away from strength to too much comfort and lux-

[1] An address delivered at the 4th Annual Southern Conference on Audio-Visual Education at Atlanta, Georgia, November 14, 15, 16. This address is printed with the permission of the "Visual Review," 1941, published by the Society for Visual Education.

ury. He says, "Worth and permanence of a democracy cannot be insured by great navies or air forces, but only by our hardihood as a people. At no time in history has any people successfully protected itself without strengthening its own fibers."

We must then emphasize in our every-day school life national unity, discipline of teamwork, development of resourcefulness, initiative, responsibility of each individual, directing the efforts of individuals toward social goals wherein everyone has a voice in the choosing. Along with this, we must also emphasize the development of a deep loyalty to the values of democracy — the worth and respect of the individual, group decisions, free inquiry, honesty, fairness, brotherhood, and equality.

I know that the problems our boys and girls have faced during the past years of their growing-up have been perplexing even to us adults, let alone what they have been to the young and groping minds. Recall the years before the First World War in which many of us grew up, surrounded by a sense of security and well-being, and contrast it with the last ten or twelve years; the depression, lack of employment, lack of medical care for many, homes broken because of financial crises, and the struggle for education. Is it strange that these young people do not seem to have the same intensity of feeling? There is no doubt that the same feeling is there within them but must be uncovered, burnished and refined by being made conscious of what it means to live democratically. Newlon in his recent book, *Education for Democracy in Our Times,* has said, "One function of education in a democracy is to inform men; another is to provide those experiences for children and youth that will develop within them the capacities that a democracy requires of its citizens."

How can we go about developing this "master teacher," experience, in schools,—better than just in school,—in the actual classroom. Let us try to visualize the classroom, not as a room with four walls, teacher's and students' desks, blackboards, etc., but as a laboratory, a laboratory of learning wherein the student by his own experience develops initiative, responsibility, coöperation, self-control, self-reliance, enthusiasm. Some experiences he can gain first-hand by field trips and school journeys, some by laboratory and research work, but a vast majority of experiences must be brought to him through the use of visual and audio aids.

You who are familiar with the filmstrip know the wealth of experience laid at your classroom door by means of it. In the field of visual aids, the filmstrip has certain distinct and outstanding advantages. It is light in weight, thus solving the transportation problem which many of us visual education directors are ever facing. A library of filmstrips requires very little storage space, the films are not breakable, they are low in cost. The filmstrip projector is simple to thread and operate, and the subject matter covers a wide area in many different fields. With the advent of the double frame picture and the 2 x 2 colored slides for which only one projector is necessary, the filmstrip has assumed unlimited use in the classroom.

By means of the magic of this small and compact visual aid, experiences impossible to gain in any other way can be brought into our laboratory of learning, the classroom. Such subjects as a Trip to China, Child Accidents in the Home, Ancient Egypt, The Renaissance, Indians of the Painted Desert are ideally suited to this vicarious experiencing. We could go on and on naming subjects touched upon by the filmstrips, but that is neither necessary nor expedient.

With the filmstrip, teacher and pupils may plan lessons together; pupils may take charge of the entire lesson, running the projector, explaining the accompanying manual, and carrying on the preparatory and follow-up discussions; they may be held accountable for the care and storage of the films; thus providing opportunity for responsible participation.

There is no doubt that along with the information gained in school, there must be personality-shaping and character-developing activities also. Emphasis should be put on the doing of things rather than on mere verbalisms. Successful teaching of citizenship must be a development of the individual through activities as well as the teaching of subject matter. Care must be taken that the oath of allegiance to the flag and the singing of the "Star Spangled Banner" do not become a matter of rote saying and singing whereby students repeat words without thinking of their beauty and true meaning. The emotionalism aroused does much to condition us for the problems we are facing today. However, we cannot be carried forward by this emotionalism unless we are backing it by teaching Americanism and love for democracy in the classroom as an integral part of the subject matter studied every day.

By means of wide variety of subject matter found in the filmstrip, we are able to correlate the teaching of Americanism and the development of good citizenship in the course of study used in almost every school.

Careers in the Army and Navy are dominant subjects in the lives of the boys and girls today, especially the boys. Among the topics in the Vocational Guidance series of S. V. E. picturols, is one entitled "Careers in the Army and Navy." While this filmstrip is prepared primarily for use in the field of Vocational Guidance, it nevertheless has direct application to the teaching of civics. The filmstrip is of the type known as the titled picturol, having explanatory titles interspersed between the pictures. Vocational counsellors are sufficiently experienced in occupational knowledge to use this series without any supplementary material, but social science teachers may use to good advantage a study outline which is available through S. V. E.

The conservation of natural resources, especially conservation of our forests, lends itself to the teaching of good citizenship in science and nature study classes. In the teaching of civics and history, the new series on American History supplement many other offerings that are available in these fields. The illustrations in these films are contemporary and add greatly to the understanding of the current scene. Charts, graphs, and diagrams are employed also in simplifying poli-

cies and trends from the economic and political viewpoint. These are of the titled type and can be closely correlated with civics and history textbooks.

The term "good neighbor" has a familiar ring to all of us. Pan-Americanism today is one of the most important considerations of our foreign policy. In the language classes, filmstrips on Mexico and South America lend themselves to the development of this subject. Filmstrips such as "Arts and Crafts of the American Indian" may be used not only in the teaching of art but also in social science classes. In the English classes, filmstrips on American Literature and holidays will afford enjoyment and valuable instruction. As an illustration of the well-rounded use of the filmstrip, "The History of the American Flag" not only fits into history, civics and English classes, but will also be welcomed for special programs around which many interesting activities may be woven.

Space does not permit the citing of examples showing the wealth of material which may be brought into the classroom by means of the filmstrip, but I believe that these illustrations have served to show how closely the development of Americanism and good citizenship may be knitted in with the regular lesson plan.

Let us, then, as educators strain every effort and make every sacrifice to bring to the students entrusted to our guidance, the fullest realization of the rich heritage entrusted to us to carry forward — love, understanding, and appreciation of our America.

ADEQUATE TRAINING FOR A DIRECTOR OF AUDIO-VISUAL EDUCATION

JAMES D. FINN
COLORADO STATE COLLEGE OF EDUCATION

The problem of training for leadership in visual education has never been completely solved. While scores of universities, colleges, and normal schools offer courses in this field, none have as yet set up a sequence of training which would lead to a certificate or diploma. Some educators believe that such courses are unnecessary. Others take the opposite position. It is of value, therefore, to have one who is already a leader outline what he considers to be the training necessary for a director of visual instruction. Mr. James D. Finn is Director of Audio-Visual Education Service in the Colorado State College of Education.

IN addition to theory, practical administrative factors influence the organization of the audio-visual program within the school. An administrator, if he possesses the soul of a true organizer, does not like to see expensive equipment bandied about his schools from pillar to post. Administrators, too, regardless of propaganda to the opposite, read professional books and attend summer schools. They become familiar with current theories. And in attempting to apply them to a given set-up, they find that their teachers need guidance and in-service training. The result is that more and more schools and school systems are giving direction to the use of teaching aids by appointing committees or, more frequently, a director of audio-visual education.

The first few "directors" to enter the field were simply called directors of visual education; but with the addition of the radio, sound motion pictures, etc., they have fallen heir to these auditory devices.

A director of a program in these teaching aids must deal with a multitude of devices and materials and be able to carry on a large group of varied activities. The tools of his field are the radio, recorders, playback equipment of various kinds, public address equipment, sound and silent filmstrip projectors, sound and silent motion picture projectors, slide projectors, opaque projectors, still and movie cameras, lights, enlargers, printers, developing tanks, and a host of others. The materials of his field include radio programs, recordings, transcriptions, radio scripts, filmstrips, motion pictures, slides, flat pictures, museum materials, maps, charts, graphs, and many more. Some of the activities are the production of motion pictures and radio programs, the booking of films, the education of teachers in the utilization of these materials and devices, and the implementing of given areas of the curriculum with audio-visual aids.

Such a diversified group of tools, materials, and activities demands a high degree of skill and knowledge on the part of a director of a teaching aids program. The following paragraphs contain certain specific suggestions as to what training might develop the required knowledge and skill and why that training is necessary.

Six areas of experience may be suggested for a student desiring to be-

come qualified to direct a complete program in audio-visual education. These six areas are: (1) general education, (2) educational theory and practice, (3) mechanical, (4) technical, (5) audio-visual education, and (6) administration. In addition, a seventh area, personal qualities, should be considered.

This training program should, first of all, give the student a thorough and broad general education. Specifically, it is necessary for a director of a teaching aids program to have a good knowledge of the *subject matter areas,* as he deals with them in his daily work. All of the social studies, sciences, and the arts should be familiar to him in their general aspects. His general education should also make him apt at *writing,* since he meets with many phases of composition in his work. He has to recast technical information into bulletins for teachers, prepare reports, and write scripts and scenarios.

The program in general education, moreover, should emphasize the *physical sciences,* for they are basic to the understanding of the technique of the field. Chemistry, physics, and mathematics are definite bases for understanding photography, projection, amplification, etc. And last of all, the program in general education should also emphasize *music, art, and the theater.* These are basic to establishing a program in motion picture or radio program appreciation, the evaluation of films and radio programs, and the production of radio programs or motion pictures.

The second area, educational theory and practice, is one of tremendous importance to the future director of audio-visual education. In the first place, *adequate experience in teaching* must be supplied. The more varied the teaching situations into which the student is cast the better. One of his greatest needs is to recognize the problems inherent in teaching. Another need is familiarity with all aspects of the problem of *educational method.* Hence, various courses in methods should be a part of the curriculum in this second area.

Closely related to method are *materials.* The field of audio-visual education itself is concerned deeply with materials. But the director should know more than audio-visual materials. He should know something of common textbooks, libraries, reference books, and pamphlet materials. And so, a course or courses in educational materials is suggested.

There are other aspects of this area of educational theory and practice which need consideration. One of these is *curriculum.* The curriculum of a given school or schools is the stuff with which the director of sensory aids works. His program, therefore, should contain ample opportunity for working on the curriculum and curriculum revision. Another phase of his experience should be teacher education. One of the hardest jobs in developing and improving a program in teaching aids is the education of teachers. The inclusion of teacher education in this proposed course for directors is a necessity.

Evaluation and measurement must not be omitted from the list. The director, when on the job, should experiment and read the literature of

experiments in his field. He should also be able to translate the technical language of experimental literature into a form meaningful to the teachers with whom he works. And the future director should also know something about *appreciation teaching.* Granted, that at the moment this is an area of controversy, yet, because he must deal with problems of motion picture and radio program appreciation, he should give the whole problem of appreciation some study. And, finally, as a supplement to the practical experience previously mentioned, there should be included a course in *elementary education* and a course in *secondary education* to give a broad view of the divisions in which a program in auditory and visual aids will probably function.

The third type of experience has been classed as mechanical. In this area performance is the keynote. The director should be able to do the technical things and do them well. He must be able to do them in order to teach others and to distinguish a good piece of work from a bad one.

Photography is the first activity to be considered here. Photography is basic to much of the visual program. Skills that should be developed in the area of still photography include copying, printing, slide binding, enlarging, developing, mounting, using lights, as well as picture taking. Other skills pertinent to the motion picture are titling and editing, as well as straight photography.

Projection is also important. A knowledge of types of projectors, their operation and maintenance, screens, light, and acoustic conditions is obviously necessary. Rewinding film, the handling of slides and film, and other complementary activities should be reduced to a reflex skill.

Sound and electronics also form part of this area. While it is not necessary for the student to become a communications engineer, he should know how to operate an amplification system, and to make minor repairs on radios, amplifiers, and sound projection systems. He should have an elementary knowledge of acoustics and to be able to distinguish bad sound from good. He should know the meaning of such technical terms as "range of frequency," and "flat curve". He will deal every day on his job with instruments which produce or transmit sound electrically, and he should know something about them.

Recording should also be included in this proposed course for obvious reasons. Various recording machines are rapidly becoming part of the equipment of many schools, and knowledge as to their use is essential. Another group of skills which should be acquired in an elementary form at least are those commonly called *museum techniques.* These are necessary for the preparation of exhibits, models, and other visual materials which play a large part in the educative process.

And last of all, the skills of *map, chart, and graph making* belong in this section. Lettering, the use of bar, circular, and other types of diagrams, as well as pictorial statistics are part of these skills. An elementary course in drafting is also implied.

The fourth area of experience was called technical. Performance must

also be stressed for portions of this area. Theoretical knowledge is not enough for the demands of the job as it has been set up.

In this classification, the skills of *radio writing and production* are to be found. Any approach to radio will at some time include the writing and production of radio programs. Even if a given school does not contact a radio station very often, there remains the use of a centralized sound system, to say nothing of dummy programs in connection with appreciation teaching. The ability to write and produce a successful radio program is composed of various knowledges and skills which must be learned. In addition, sufficient practice in using these tools must be supplied.

The director of an audio-visual education program will at some time or other be faced with the problem of producing a motion picture. In addition to the mechanical photographic requirements, it is necessary to know how to write a scenario, build elementary sets, what to cut out and what to leave in a film, and many other things. *Motion picture production,* then, should be another phase of this technical area of the proposed course.

In addition to the knowledge gained through his experiences in the general education program, the future director should have further experience with some of the areas first introduced to him in general education. One of these is art, and the particular phase of art to be emphasized is *composition.* Composition is present in all phases of photography, chart, and poster making. Whether the problem is to actually execute a composition or to analyze one, it is, nevertheless, ever present.

Further emphasis should also be placed on *dramatics and music.* The reasons for this should be perfectly clear. The dramatic element is present in the radio program, the motion picture, and even at times in the film strip. In addition, dramatization is included in some schools as a part of the visual technique. Music is important for much the same reasons. This is particularly true of the radio programs where it is one of the three elements of production. With the addition of sound to motion pictures, instantaneous recording, and amplification problems to the audio-visual program, music is demanded as a portion of basic technical knowledge.

The fifth area was called audio-visual education. This is the general area covered by courses in "visual aids to education," "audio-visual aids to instruction," etc. It contains the thinking and literature of the field itself.

Obviously, the first thing necessary here is a *broad knowledge of the field.* Both theory and practice should be an open book to the student. He should be acquainted with all the literature, particularly the experimental.

Secondly, the student should have a finger-tip knowledge of the *materials of the field.* He should have what has been termed a "working vocabulary of audio-visual materials." This is necessary so that the important function of curriculum implementation may be carried out. The director of audio-visual education works with teachers in suggesting materials that may be useful to them in their teach-

ing problems. His knowledge of materials should be vast and critical.

This area should also emphasize the *special techniques of utilization* of these materials. It has been pointed out many times that using films, slides, radio programs, or any of these other aids in teaching requires special utilization techniques. Again, because he must work with teachers, the director must know these techniques.

Another area, mentioned because it receives only passing attention from many people supposedly interested in problems of audio-visual education, is that of the *radio in education.* Throughout the country at the present time, some institutions of higher learning are offering courses in this area, and it is recommended that the program proposed here include such a course.

Because of the recognized obligation of the teaching profession to study out-of-school educative influences and to do something about them, the *theatrical motion picture* and the *standard radio program* should be included as studies. The student should be aware of the influence of these media and what modern schools are doing about them. It may be his lot to have to direct a teaching program concerning them in a school system. Other reasons for a director of audio-visual instruction to have more than a passing knowledge of the motion picture and the radio should be obvious.

Finally, there are some things in this area that can be learned but that defy a name or classification. For example, the knowledge of how to take a sequence of pictures so that they tell a story is important to know and must be learned. Anyone who has tried it will verify the fact that it is not easy.

The sixth, and last of the instruction areas was called administration. The director we are attempting to train will be, in the final analysis, an administrator. And, regardless of opinions to the contrary, no action of a board of education or a board of trustees has ever made an administrator. Some of the qualities necessary are probably social, but many of the techniques have to be learned.

Office detail is one of the very important administrative skills. Under this heading may be grouped the filing, cataloguing, ordering, and classification of materials. The materials of the field are extremely varied, and yet they must be obtained and arranged so as to be useful to the teacher. These various skills may be acquired in a special course. *Accounting* is also a necessary adjunct to the administrative section. While it is one of the functions of the office, it probably should be dealt with separately.

The *purchase and maintenance of* equipment is a regular function of the audio-visual aids office. Familiarity with equipment will be achieved in the proposed course under the mechanical section, but further instruction in testing, purchasing, and maintaining equipment is advisable.

Personnel is another important area. While the director in a small organization will not have many personnel problems, he will have some. A knowledge of the problems of personnel is a distinct asset to any administrator.

The course as proposed should also

provide experience in the generally accepted fields of school administration. Among these are the areas of *school organization and finance.* As audio-visual education is a new and, in many cases, an untried portion of the school program, the director in most situations will be haunted by financial problems. A knowledge of school finance may be of great assistance to him.

Again, in this section, there are certain abilities that defy analysis and classification. A successful director of a teaching aids program, particularly if he is starting out, must have the ability to accomplish a lot with little money or equipment. Moreover, a knowledge of short cuts is extremely helpful. Some of these things, however, come only after years of experience.

In the original classification a seventh area, personal qualities, was mentioned. Every job has a category of personal qualifications necessary for its successful functioning. The complex job of directing an audio-visual program is no exception, and perhaps has even more than its share.

The first and foremost qualification is *leadership.* Audio-visual education is relatively a new field in the whole area of education. Anyone who works successfully in it must be able to lead others. It is true of all social institutions that anything new meets with opposition and misunderstanding. It takes leadership to straighten out misunderstanding and turn opposition into support. It takes leadership to develop a sane program, to educate teachers, and to create enthusiasm.

The second quality is a well-balanced *social personality.* This is extremely important. The successful director must be able to get along with people. In his daily work he meets salesmen, administrators, teachers, and other workers in the field. Leadership is not enough. He must also know when and whom to follow. His ability to make successful social contacts will determine the success, in a large part, of the audio-visual program.

A third quality is a *sense of balance.* Balance is required between the technical and educational phases of the fields. Too many directors of programs emphasize the replacement of an exciter lamp in a projector to the detriment of good teaching with a sound film. They speak glibly of the focal length of lenses and are tongue-tied as to teaching procedure. On the other hand, there are people working in the field who can talk at great length about the educational advantages of radio programs and motion pictures who can't thread a projector and are unaware that the image on the ground glass of a camera is upside down. A sense of balance is the answer. The problem of administration, too, is a problem in balance. Some administrators get so immersed in the details of ordering, filing, and bookkeeping that they neglect the large over-all factors such as intelligent planning for the future. A balance between all these activities must be achieved by the successful director.

The director expressing *experimental tendencies* in his work will go far. The desire to experiment, to find answers to problems by careful study is a desirable characteristic, especially in this new field of audio-visual edu-

cation. Closely allied to the experimental characteristic is *intellectual curiosity*. Many times a person, after he has had reasonable success at a job, tends to let down. The director of a truly significant program will have a desire to read, to attend conferences, and to contact thinkers in the field.

The section on personal qualities concludes this exposition on an adequate training program for directors of audio-visual education. Several problems now become clear. Assuming that this analysis of the field and its problems is correct, what about the science or social studies teacher who is suddenly handed a program in audio-visual education to direct? What about those people who are at present directing programs? What shall be done about the gaps in their experience? Will the remuneration for such jobs be commensurate with the training program just outlined? And will the direction of audio-visual education be looked upon as a specialized profession?

Solutions to these and many other similar problems lie in the future. The demands of theory and of administrative procedure require highly trained persons in the field of audio-visual education. And yet it would be difficult to point out one institution of higher learning in the United States where the course outlined above could be taken and adequate and acceptable degrees received. The challenge, then, it seems, is thrown out to those institutions whose main job it is to educate teachers and administrators. The field must be recognized as significant, and an adequate program designed to meet the needs of the schools must be set in motion.

PLATO ON COMPULSORY LEARNING

"Knowledge which is acquired under compulsion obtains no hold on the mind. Then do not use compulsion, but let early education be a sort of amusement; you will then be better able to find out the natural bent."

Plato: Republic 536-7.

EQUIPPING A ROOM FOR VISUAL INSTRUCTION

WILLIAM T. KUTSCHE
EAST GRAND RAPIDS PUBLIC SCHOOLS

Many schools have found a solution to the problem of administering visual education by setting aside one classroom which is known as the visual education room. Mr. Kutsche describes how this was done in East Grand Rapids High School.

THE ideal arrangement for school use of visual equipment in the form of motion picture, baloptican, and lantern slide projectors is to have equipment in each classroom so that it can be used as an integral part of classroom teaching. This insures that teaching motion pictures, for instance, will not be considered by the children as a show nor will any great amount of fuss and bother be attached to their use so students feel that something extra is being included in their study program.

The obstacles to achieving this ideal are of a practical nature. It simply costs too much.

It costs too much for most schools to equip each room with the proper kind of light-tight curtains in addition to the transluscent kind required for ordinary study. It involves too great a duplication of projection equipment, especially of expensive motion picture projectors, too many screens, and too much storage space in each room to justify itself in a practical way, except in special instances where continuous use of the equipment is to be made.

Short of having duplication in each room, if individual rooms are to be used for projection, there is the problem of bringing the projector to the room, setting it up, and returning it to its central place of storage. Damage to the equipment as it is moved, loss of time from classroom activities, interruption of the students' concentration are among the faults of this method.

One solution to the problem of the use of projection equipment is to equip one room and take classes to it when visual materials are to be used. There are many faults to this plan, but it does present one solution to the general situation.

The room for this purpose should not be the school auditorium, for there the children see so many forms of entertainment that the suggestion is carried to their minds that a teaching film is to be looked upon as a show. When students rate teaching films and slides on entertainment rather than educational values no great gain will come from the average worthwhile teaching visual aid.

Likewise, the use of the school auditorium tends to invite large groups to see the films at the same time, which causes the teaching environment to change from that of the classroom, with numerous auxiliary distractions.

The room chosen should be one of the regular classrooms of the school. Visual aids will then be a normal part of the study atmosphere. In addition, since visual aids should seldom be used to fill a class period, the regular program of preparation and study can be carried on conveniently before and af-

ter the showing of the visual material.

If the school building is overcrowded, so that every room must be used every period of the day, the room equipped for use of visual aids may be assigned with the distinct understanding that the teacher in charge will exchange rooms with whoever wishes to use the equipment. This does not work out so badly in practice as it sounds if the requests are made sufficiently in advance to avoid great inconvenience in shifting the classes. If this is to be the plan, it is imperative to post a schedule for use of the room in the school office.

The East Grand Rapids High School has done much experimenting to determine what best meets the needs of a medium sized school. The result is the visual aids room which will be described in the remainder of the article.

The room chosen was selected for its location, size, and acoustical properties. It turned out to be a centrally located room on the second floor of a three floor building. Its size is sufficient to seat sixty pupils, which represents enough capacity to handle, if necessary, two of the largest class groups at a time. Its acoustical properties are frankly not too good, but are the best which seem available in the school. It is surprising how often in public schools these important characteristics of a good teaching room are completely overlooked in design and construction.

The room is equipped with some thirty-five desk-chair combinations, such as are used throughout the school. At the back of the room additional auditorium type chairs have been moved in to handle an occasional larger group.

The room is used as one of the several homerooms of the school organization, and students report to it regularly for homeroom purposes morning and night, and for meetings. There are no classes scheduled for this room. The students who use it as a homeroom keep their books, supplies, and clothes in lockers which are located in the hall just outside the doors of the room. They do not, therefore, interrupt or interfere with classes in the room during the time it is in use for visual purposes.

The room is equipped with an extra set of heavy brown window shades which are pulled down to darken the windows in addition to the usual set of transluscent curtains for ordinary use. These heavy curtains are full length, while the ordinary ones break in the center of the windows, as is a common practice. The room is darkened sufficiently by this means, but is not completely dark. The arrangement has the advantages of simplicity in darkening the room for projection use, is inexpensive, and does not clutter the windows with special devices.

A role screen is mounted on the front wall. It can, of course, be rolled up out of the way, but the room has been used so much that by common consent it is now left down all the time.

The feature of greatest use in the room is the projection booth and cabinet for storage for the school's visual education equipment which is combined in one unit. This cabinet was made by the shop teacher and, though large, is by no means objectionable in

the room. It stands six feet high, is thirty inches wide and four feet long. On the right-hand side the projector for sound or silent movies is always set up and focused on the screen. This means that it is always connected to the power outlet, to the speaker and ready to thread without changing its position. To operate, it is only necessary to raise a sliding opening in the front of the cabinet to permit the light to throw to the screen. This is on the top shelf of three, in order that the throw of light will be above the heads of the students.

The second shelf contains the rewind and splicer. Lights are placed above both of these shelves so that work can be done without interfering with projection in the darkened room. The lower shelf is storage space for such "live" equipment as the projector's speaker and a silent projector.

The other side of the cabinet also has three shelves which serve to store the remainder of the school's visual aid equipment, which consists of a baloptican, a lantern slide projector, a portable screen, and one of the school's radios.

When the motion picture projector is running with the doors of the cabinet closed, there is almost no projector noise in the room. To put away the equipment, all that must be done is to close and lock the cabinet door.

A table with a tilting top to permit focusing of the baloptican and lantern slide projector is kept in the room and the projection cabinet is wired with an outlet at the front so that these machines can be plugged into it.

The school's library of lantern slides is kept in the room for convenient use.

The school office posts a schedule sheet on which teachers must sign for the use of the room. The sheet is divided into the days of the week and the hours of the day. Every effort is made to permit wide use of the room and its equipment. Usually a class will transfer to this room and conduct its meeting throughout the hour, but occasionally two classes will go together. If two classes are to see films which are on hand for a limited time, the room may be used by one group for half of a period and by another for the remainder.

The sound motion picture projector does not leave this room save for use in the school auditorium on occasion. The other equipment stored there can be taken to classrooms if necessary, where it can be used when the shades are drawn if the day is not bright.

At the East Grand Rapids High School the visual aids room is in use from half to all the time every week in the school year. As now organized it has proved of marked assistance to teaching. It appears to be one solution to the problem of where to show and how to care for visual materials.

A NEGLECTED FACTOR IN THE USE OF AUDIO-VISUAL AIDS

W. GAYLE STARNES
UNIVERSITY OF KENTUCKY

All too frequently one hears the question, "Why do teachers not make better use of visual aids?" Mr. Starnes, Director of Visual Instruction at the University of Kentucky, in answer says that more teachers should be trained in how to use visual materials

TEACHER education is one of the most important factors in the development of the audio-visual aids program; yet it is being given very little consideration by teacher education institutions and school administrators. The use of these materials has not had a systematic or dignified entrance into the schools. The teacher who a few years ago wanted to use these aids in his instruction was tolerated by his associates. He realized that certain fundamental techniques of use were necessary, and he slowly and carefully worked them out for himself. Now that "visual education" has become a popular term in our vocabulary and using these materials is today "the thing to do," those educators who tolerated the audio-visual aids user several years ago have now suddenly become very enthusiastic and are making claims for these aids that the sincere visual aids student would never dream of making. The result is that these materials are being so badly misused that unless serious consideration is soon given to teacher education, these aids will have fallen into such bad repute that it will be very difficult to reclaim them for their great potential educational contributions.

Too many have accepted the motion picture as the only aid in the field, giving no consideration to the older, yet often more valuable, aids such as lantern slides, flat pictures, film strips and stereographs. It is surprising the number of teachers who fail to use the excursion, which is really the best of all visual aids, because it is old-fashioned. No school that uses only one or two aids exclusively can justify any claim to an adequate audio-visual aids program. These materials are often used as substitutes *for* teaching rather than aids *in* teaching. The first question usually asked about a particular aid is, "Will it occupy a whole period?" These aids are not properly correlated with the curriculum and with other teaching tools. Too seldom is there proper teacher and pupil preparation and follow-up in the use of audio-visual aids.

Since the motion picture has been borrowed from the field of entertainment, it is probably the most misused of all the aids. Many teachers, instead of using a film in the classroom when the class is studying the topic which the film will help explain, show it in the auditorium to the entire school. One of the fundamental prerequisites to the effective use of the motion picture as a classroom aid is the eliminating of the "picture show" attitude on the part of both teachers and pupils. It is actually a common

practice in some schools to show such unrelated films as "The Heart and Circulation" and "Magnetic Effects of Electricity" to the same class during one class session. Many teachers order films from libraries by requesting "four reels on Monday of each week for the remainder of the semester." Some feel that they are arranging for an effective program when they specify that at least two of the four reels be on science.

There are several ways by which teachers may learn to use these materials correctly. An in-service education program may be carried out by the director of visual aids through teacher's meetings, conferences, bulletins and demonstrations. The chief reason the possibilities of this type of program are not being realized is the fact that only a few schools as yet have qualified directors.

Many colleges and universities are now offering general courses in the use of audio-visual aids during their summer sessions. This provides a good way for teachers to become acquainted with the fundamental principles in the use of these materials; but, since only a comparatively small number of teachers attend summer sessions, this method of in-service teacher preparation is limited.

One of the best methods of reaching the teachers now employed is by extension classes. They are convenient for the teachers because the instructor comes to them, and the cost is relatively low. However, the most important advantage of extension classes is the opportunity the teachers have of making immediate application of the course instruction in their own teaching. Only a small number of institutions are now offering extension courses in this field. This type of in-service education should be encouraged.

The problem of preparing the teachers in training for the correct use of audio-visual aids should be reasonably simple. Yet little progress has been made thus far. Only a very small number of institutions offer a course in visual instruction during the regular year, and in only one state, Pennsylvania, is such a course a part of the regular teacher-education curriculum. All prospective teachers should be required to take at least one general audio-visual aids course. Additional courses should be offered for those who wish to become audio-visual aids directors.

In addition to this required general course, units on applicable visual materials should be included in all methods courses taken by the prospective teachers. This would help to overcome the tendency to consider audio-visual aids as a self-contained body of content, which is an obvious disadvantage of offering a separate course. However, these units in methods courses cannot be meaningful to the students unless they already have a knowledge of the relative advantages and disadvantages of the various aids in specific teaching situations and of the fundamental philosophy and techniques of use of these aids. The general lack of understanding of these principles on the part of the methods-course teachers prevents the realization of the maximum effectiveness of this work.

Audio-visual materials should also be used in college subject-matter courses. When this is done, the teachers in training have an opportunity to realize their value from a student's viewpoint.

No single plan of those mentioned will provide complete teacher education in the use of audio-visual aids. School administrators must appoint audio-visual aids directors and encourage their teachers to take summer session and extension courses in the subject. The teacher education institutions must develop a systematic, well-balanced program for the education of prospective teachers in the use of these materials.

THE CURVE OF NORMAL DISTRIBUTION

"Few are the good and few the evil: the great majority are in the interval between them." "Nothing is more uncommon than a very large or very small man; and this applies generally to all extremes, whether of great and small, or swift and slow, or fair and foul, or black and white: and whether the instances you select be men or dogs or anything else, few are the extremes, but many are in the mean between them." — *Plato: Phaedo, 90A.*

A COUNTY-WIDE VISUAL AIDS PROGRAM

OLGA LOCKE REED
SANTA BARBARA COUNTY PUBLIC SCHOOLS

One often hears the query, "How may visual instruction reach out into the rural areas?" Some believe that the answer lies in the organization of county units. Mrs. Reed describes how Santa Barbara County in California administers its visual instruction program. It is worthy of note that the City of Santa Barbara has pooled its resources with the County in order that the less privileged schools may share the materials available.

FOR many years the modern classroom teacher has been collecting pictorial material from magazines, industrial concerns, and government publications with the view of further clarifying and intensifying the student's experience. Because there were duplication of effort, inadequate filing facilities, and a limited supply of materials covering all fields of interest, teachers in Santa Barbara County expressed a desire to combine their efforts and materials, and have a central point of distribution. A visual-aids committee composed of teachers was formed to organize the material. They mounted pictures, magazine covers, photographs, and posters. The flat pictures were mounted on light tagboard 12 inches by 18 inches. The posters were backed with cheesecloth, which made them durable.

In order to supplement their material, the committee used all available lists of free and inexpensive material and sent for such information. This material was treated in a similar manner. Many booklets were received. These had to be made durable, so cardboard covers were made with the help of a National Youth Administration project. This N. Y. A. labor was used in making these materials ready for circulation.

All material was then sorted, titled, catalogued, and filed under the proper item of the scope. These items include: (1) Developing, Conserving, and Intelligently Utilizing Human Resources; (2) Developing, Conserving, and Intelligently Utilizing Non-human Resources; (3) Producing, Distributing, and Consuming Goods and Services; (4) Communicating; (5) Transporting; (6) Recreating and Playing; (7) Expressing and Satisfying Spiritual and Aesthetic Needs; (8) Organizing and Governing; and (9) Providing Education.[1]

Meetings were held with all teachers for the purpose of acquainting them with the available material, preplanning, and discussions of how to use these visual aids effectively. It was decided that in order to have the material effective and worth while, preplanning was necessary. Teachers set up criteria for themselves in the form of questions. The following have been found helpful:

(1) Does the material deal directly with the problem at hand?

(2) Is it accurate and reliable?

(3) Will the visual aid used increase interest, understanding, and tolerance?

(4) Is it worth while in time?

1 "Santa Barbara County Curriculum Guide for Teachers of Elementary Schools" (Santa Barbara, California: The Schauer Printing Studio, Inc., 1940).

(5) When and how should it be introduced, integrated, and evaluated in the present classroom experience?

(6) Is there a variety of types of visual aids so that new pictures, graphs, charts, etc., may be introduced as the old ones are removed?

(7) Has the total experience been planned in such a way as to make it a valuable learning situation?[2]

All teachers have access to this material in the curriculum laboratory, and are encouraged to select material which deals directly with their problem at hand. Teachers often refer to criteria set up in the selection of their pictures. The material is meaningful and is used at once for a specific purpose. Teachers are encouraged to display this material on the eye level of the children. A few pictures arranged attractively for a limited time with a stimulating caption above or below increases interest and understanding. The supervisors are helping teachers make the maximum use of these aids. Teachers are urged to return material as soon as the need is past.

Pictorial materials are used for many purposes in a variety of ways. Teachers find them valuable in developing creative thinking. Children are encouraged to make up a story of what event they imagine preceded the picture or will follow. Pictures take on new meaning for children. In reading they soon learn to stop and see how the picture clarifies the meaning of the printed word.

Chart stories are often developed for reading material when the picture deals with the subject with which the children are working. Many prereading experiences are developed with this visual aid. Teachers have these pictures in sequence so that they tell a complete story. For example, children studying the home will have pictures which will tell in detail what others in the group will be reading. Photographs are especially valuable when they are large enough to be usable in the classroom. Their uses are similar to those of pictures.

Pictures are used often to help solve a problem. For example, a group of children were constructing an oil derrick. They were not sure where the braces should go, and were unable to go to an oil field nearby, since no one is allowed on the premises during the war. The teacher obtained some photographs from the curriculum laboratory, and the children braced their derrick.

Pictures are often used to present a new problem. After completing the derrick in the study of oil, the next problem dealt with drilling, and was stated as follows: "What are the common methods of drilling for oil?" "Which one is used in our local fields?" "Why is it preferred?" Pictures showing the rotary and standard methods were placed on the bulletin board. Children were able to see the advantages of each type. Since they were unable to visit the field itself and see a well being drilled, the pictures clarified the first problem. The parents, who were oil workers, discussed the method used in their local fields, and its advantages.

Artistic pictures are used to beautify as well as lend atmosphere. A

[2] Ibid.

teacher, after thoroughly studying the needs of her class, sometimes uses pictures to suggest a new field of interest to a group which she is meeting for the first time.

Many teachers continue to develop individual collections of visual aids. These apply to material collected by the teacher peculiar to her own community. Since children are encouraged "to shoot" with their cameras, and many parents are candid camera enthusiasts, excellent community source material is being gathered. Cartoons are very effective in conveying a social, economic, or political problem briefly in the smallest possible space. It is an excellent opportunity for students with artistic ability to represent their own thinking or that of the class. Graphs, charts, and diagrams pertinent to the question have been used from newspapers, magazines, and supplementary books. Construction of graphs is a very valuable learning experience for children. Here numerical relationships are visualized. Oftentimes a complete process, cross-section, or views of inaccessible areas are best shown by diagrams. Students are shown how and encouraged to make various types of graphs, such as bar, circle, curve, and picture. Original sketches, posters, and freizes are used. Each student's work, having been displayed attractively for a limited time, is filed with his other records which he uses in evaluating his work.

Teachers are learning of all available resources within their immediate communities. At the present time a bibliography is being compiled which includes listing of all visual aids material: exhibits, movies, and slides which are available within each of the four geographical areas of Santa Barbara County.

A projected aid available to all schools is stereographs and stereoscopes. Teachers have found that these have an advantage over flat pictures in that they are in three dimensions as well as being realistic, accurate, and reliable. The reading material on the back of each stereograph has been found very valuable. However, this aid is individual, since it is impractical to furnish all pupils with stereoscopes and the same stereograph. This material is very durable as well as economical, and can be obtained for a variety of experiences on the child's level.

Several schools have purchased still-film projectors. The office of the county superintendent of schools supplies the films, purchasing those which contribute to the program of studies. These films are kept in the curriculum laboratory and are circulated to the schools as requested by the teachers. Teachers feel that the advantages of films over stereographs are compactness, ease of handling, and the use of the films with the entire group for class discussion.

Many schools have stereopticons. Slides made by children in the form of pictures, outlines, and summaries of reports furnish an added means of expression for children and are of vital interest to the class. The criteria set up by groups for showing these are: (1) The child showing the slides previews them and has a running account ready; (2) time is allowed for discussion and evaluation which may

take place during the showing; (3) children are encouraged to follow ideas suggested.

The untiring efforts of the group of teachers in developing a wealth of valuable material has been realized. This school year the county and city visual education departments have been merged, thus making available to all rural teachers the vast amount of materials that have been developed by Santa Barbara City in coöperation with the American Council on Education and a very adequate Public Works Administration project. New materials available to county teachers include maps, flags of all nations, models, diaramas, slides, cases of minerals, cotton, and wool, paintings, and motion picture films. These are now distributed to both the city and county of Santa Barbara from the department under the guidance of a city and county director. In order to facilitate distribution, centers determined by geographical areas are being set up in the county.

In evaluating, the visual aids materials have been a definite part of the in-service training program for teachers. It has helped all teachers to: (1) give correct concepts and impressions; (2) increase the number of impressions received through sight; (3) make lasting impressions; (4) make experiences real and lifelike; (5) give vicarious experiences to the child which would be outside of his own knowledge; (6) give experience with definite objects or models; (7) motivate interest; (8) supplement other learning; (9) save time; (10) enrich and vary classroom activity.[3] Teachers are intelligently using visual instruction, which includes kinaesthetic as well as the visual sense, in the study of the immediate problem, for its chief value lies in its being made a part of the learning situation.

3 Ibid.

A CAMERA CLUB'S CONTRIBUTION TO VISUAL INSTRUCTION

RALPH E. BRANT
VASSAR PUBLIC SCHOOLS

The phenomenal growth of interest in photography during the past decade has made its impression upon schools. The school camera club is one of the manifestations of this interest and when properly organized and directed it makes a contribution to the life of the school. Superintendent Brant outlines the way in which the camera club at Vassar, Michigan, High School has become a vital part of the visual instruction program in the schools and community.

THE inception of a Camera Club as an extra-curricular activity in the school program five years ago marked the beginning of the visual education program in the Vassar Public Schools.

The club with a membership of fifteen started from scratch with a few inexpensive cameras and a desire to take pictures. The students soon felt the need of definite organization, the outcome of which resulted in a constitution of their own making, one of the more important regulations being the requirement that each one build and take a picture with a pin-hole camera before becoming an active member of the organization. A portion of the chemical storeroom was converted into a dark room. An electric dryer was built with the help of the radio club. A makeshift enlarger was constructed, the writer contributed a home portrait 8 x 10 commercial camera, and many other miscellaneous items necessary to the development of pictures soon took form.

The following list of purposes is evidence that the club members little realized the contributions their organization would eventually make to the life of the school:—

1. To foster interest in photography among the students and faculty of Vassar High School
2. To provide students and faculty with a useful as well as interesting extra-curricular activity
3. To promote the exchange of ideas, exhibitions of photographs, and contests
4. To help improve the photographic work of the individual club members
5. To provide a means of keeping a permanent record of the student and faculty activities such as sports, parties, and dramatic productions
6. To aid in the development of interest in and appreciation of art and science

During the third year of its life the club listed the following accomplishments, the third of which is particularly significant from the standpoint of visual education:—

1. The furnishing and equipping of a complete darkroom with locker space for fifteen members
2. All solutions used by members are mixed from raw chemicals by a committee of members
3. The taking, developing, and finishing of photographs of all school activities, including sports, dramatics, musical productions, class activities, assemblies and candid shots of students and faculty
4. The preparation of a booth exhibit for the annual Community Fair held at the school
5. The presentation of a series of lectures on photography with accompanying slides
6. Monthly pictorial contests open to all club members with cash prizes for the winners

7. Sponsoring and planning two club parties in the form of hikes, outings, skating parties, or tours.

The taking, developing, and finishing of photographs of class activities, projects, assemblies, et cetera, has become the outstanding accomplishment of the club. A 13 inch by 15 inch loose-leaf album serves as a cumulative record for pictures of all activities taken, and is placed on the counter of the outer office where it is available to students, faculty, and patrons. A few of the more important types of pictures taken are as follows:—

1. The speech class while studying after-dinner speeches asked the Home Economics department to provide a noon luncheon for them, after which several speeches were given. The camera club took a picture of the event.

2. Members of the Board of Education and their wives were invited as guests of the Home Economics department for a six-thirty dinner, following which two students discussed two activities of the school. One of the speakers gave a detailed illustrated explanation of the many factors essential to taking pictures. Pictures were taken of the dinner party and prints were later presented to each of the guests.

3. Each year approximately five hundred rural pupils are invited to the local school to take part in the Vassar Rural Play Festival. The entire responsibility for conducting the day's activities is delegated to the high school student body. Still and motion pictures are taken of the many events and a week or so later the rural students and their parents are invited to return to Vassar as guests of the Parent-Teacher Association. At this time local business men present suitable awards to schools and individuals for total high points won in the numerous events. The remainder of the evening is spent showing motion pictures:— one a school film, "A Day in the Vassar Schools," followed by pictures in color of the rural field day activities of the present and former years. Still pictures of pupils participating in events are also mounted upon the walls of the auditorium and may be purchased by pupils at a nominal cost.

Two important outcomes have resulted from this rural visual program: (a) high school pupils learn to take responsibility and enjoy being hosts and hostesses to their rural friends; (b) rural pupils learn of the many educational opportunities possible following graduation from the eighth grade, either at Vassar or some other nearby high school.

4. Each week a boy is selected from the senior class to attend the Rotary noon luncheon, as a guest of the club. At the end of the year these boys prepare a program for the Rotarians. After the luncheon pictures taken by the students serve as an annual record of one of the club activities.

5. The camera club is busily engaged at present making 35 mm. slides of agricultural, manual arts, and home economics projects. These will be used by the teachers as aids in evaluating their work as well as affording a nucleus of interesting programs for rural and local P. T. A.'s, farmers clubs, and other lay organizations desiring to become better acquainted

with the activities sponsored by the school.

6. The camera club is on call at all times by teachers who desire pictures taken of room activities, such as, grocery store, post office, school bank, nature project, train, dramatizations, and many other projects too numerous to mention. Such pictures in the hands of skilful teachers assist children in evaluating their own accomplishments.

7. Before the close of the school year last spring, George A. Stracke, Visual Education Specialist, of the Flint Public Schools, was invited to a faculty luncheon and discussed his experiences in Visual Education. Prior to this meeting our school had joined the Film Service Program sponsored by Central State Teachers College, at Mt. Pleasant, Michigan, for the year 1940-41. Mr. Stracke's experiences proved exceedingly valuable in assisting a faculty committee in selecting educational films for the present school year.

Visual aids include many types in addition to snapshots, film strips, and motion pictures. They are maps, charts, blackboards, cartoons, dramatizations, glass slides, the stereoscope and the stereoscopic pictures, posters, exhibits, models, museums, flashcards and pictorial books used in the grades, word pictures cut out of cardboard which are placed over or on bulletin boards with thumb tacks, and pictures selected from many different sources.

Each year our teachers have added innovations which tend to vitalize instruction in a visual manner, some of which may be of general interest:—

1. A unit on the improvement of English by the reading of good books was developed in the sixth grade. The slogan, "Books around the world," selected for Book Week was discussed by the children. It was suggested that a trip around the world might be made by the aid of books. Each pupil reported to the class something of interest concerning the people or land of which he had read. A book cover was then prepared, titled, and colored for the bulletin board which would arouse the interest of other pupils and cause them to desire to read the book. This exhibit was shown at the Community Fair, P. T. A., School Masters Club, Ann Arbor, Michigan, and the State Conference on Education at Lansing.

2. A recent Parent-Teacher meeting afforded an opportunity of showing the patrons how the teaching of arithmetic could be made more meaningful to the pupils. Exhibits of cardboard gas meters were shown by eighth grade pupils who also brought gas bills from home. The skit emphasized the reading of gas meters and how to figure one's own gas bills. The fifth grade presented a play in which the integers showed the relation of one fraction to another. The home economics girls presented a brief style show, dresses were on exhibit; elements of arithmetic were portrayed and the arithmetic carry over was brought out through the cutting of the material for the dresses, and arriving at the cost of the material needed. They also calculated the cost of food for a dinner party of four people.

3. A mimeographed sheet was sent to officers of various civic organ-

izations from the speech class listing topics and student speakers who were willing to appear on their programs.

4. Radio broadcasts were presented over station WBCM, Bay City. The fifth and sixth grade overflow room prepared a program, "WE are on the air." The band and glee clubs have also taken part on various occasions, and the speech class will soon make an appearance.

5. Students in the agricultural department prepared exhibits for the Community Fair, farmers clubs, and rural adult education classes of:— field trips, charts, posters and photographs, seed treaters, potato dusters, exhibits of feeds, soils, seeds, fertilizers, swine and poultry worm treatment, displays of twenty good farm practices including milk testing, feeding dairy cattle, culling poultry and swine, and soil erosion.

6. The annual Community Fair provided an opportunity for the display of visual aids of all types, representative of the kindergarten to the twelfth grade. One thousand bulletins listing the various exhibits were mimeographed by the commercial department students and sent to the patrons advising them of the Fair.

7. A skit on "Manners" was dramatized by members of the student body and presented at one of the school assemblies.

8. Slogans, mottoes, and timely sayings have been cut out of cardboard and placed in appropriate places about the buildings by students, all of which have improved the general morale of the student body.

Before preparing this article the writer asked the students in the advanced English classes if they would care to write themes on "Visual Education in the Vassar Schools"; as a result many interesting ideas were expressed.

One student said, "My visual education started when I was a baby, by seeing some one do something and then trying to imitate him. Then when starting school I learned how to read and study with the help of flash cards, maps, pictures, and so on."

Another student wrote this interesting theme:— "Last night I was a participant in the making of a poster that was to contribute to our visual education. At the front of the assembly hall there is a long blackboard upon which every week is put the schedule for that week, which includes the basketball games, parties, debates, and other items of importance, together with some good advice, usually issuing from some cartoon sketches.

"The one upon which we labored last night is now illustrating a boy's letter to Santa Claus, saying, 'Dear Santa, Please bring me: 1. good grades, 2. friendship, 3. good habits, 4. team spirit, and 5. clean floors.' While Santa says, 'Sorry, son, but you will have to get those for yourself!'

"Besides these interesting caricatures, we have the bulletin board in the hall, which is overloaded with snapshots from the camera club, posters, notices, and several assorted mottoes. In the history room are two standard bearing maps. The walls are also festooned with them, and there are even some student-drawn ones on the board.

"Our superintendent fortunately is

an ardent motion-picture-taking fan, and we are frequently shown interesting movies. Also he engages people who have taken interesting pictures. Mr. Fisher, who presented his filmed experiences in technicolor recently, was one of these.

"Down in the lower hall, used by the grades, are pictures from the American Automobile Association cautioning children to be careful when crossing the street. In fact, anywhere you look in our school you will find evidence of our visual education."

A third student stated, "Through the use of visual aids, ideas, facts et cetera, are more firmly fixed and remain in the memory span for a much longer period of time. Visual education is often more interesting, pupils seem to do better work, and it provides a definite and simple way to acquaint students and patrons in a very short time with what many have taken months or even years to develop."

As is usually the case with most ventures the lack of sufficient funds hampered the ambitions of the camera club members in taking snapshots of school activities. However, this has been overcome and the club is now self-supporting, and has purchased considerable modern equipment. Its balanced budget has been made possible through the sale of pictures to students who have been photographed in the various activities in all the grades.

This year the Board of Education has contributed sufficient funds for a motion picture film service rental which provides for two or three films a week for the school year. A free film service catalog is also available for supplementary films.

A student has been placed in charge of operating the projector and it is his duty to train additional student operators for every hour of the day.

Our greatest difficulty at present is experienced by the camera club which because of limited facilities, seems unable to find the time to develop the many snapshots of classroom projects and other room activities requested by the teachers. Another difficulty has been overcome through the use of "Celotex" bulletin boards purchased at the local lumber company in sizes 4′ x 6′, 4′ x 8′, or 4′ x 10′; the shop department cut these into other sizes when needed. These boards make excellent and inexpensive places to display school work. Such displays have materially vitalized the instructional program and do not over-burden the skilful teacher who solicits student help and encourages student responsibility.

We are constantly evaluating our visual education program on the basis of: (1) Its practical value, (2) to what extent is it instructive, and (3) does it have the proper correlation with other academic procedures.

Those directly responsible for the visual aid program need be constantly on the alert, or "the side show may run away with the circus," for this type of activity is usually very interesting and it is possible that these aids might fail in their educational values, if they are not properly evaluated.

CRITERIA FOR THE PRODUCTION AND SELECTION OF VISUAL AIDS

DAVID J. GOODMAN
BROOKLYN, NEW YORK

For years the producers of visual aids have said to school men, "Tell us what you want and we will produce it." Whereas school men have said to producers, "Produce what we want and we will use it." This hiatus has never been completely bridged. Mr. Goodman not only outlines this problem clearly but proposes a method whereby certain aspects of the difficulties involved may be solved.

WHETHER or not visual aids should be used in teaching is no longer a question for discussion. They have an established place in current practice. The number, variety, and extent of their use has grown to the point where a new question must be answered, "What is a *good* visual aid?"

One would have expected, with these materials so thoroughly accepted, that that question, too, had already been answered. Surely sound principles for the production and use of visual aids must have been applied and established. And no doubt the extensive literature of educations could show an abundance of discussion and reports on the problem of criteria for the selection of instruction materials.

But an examination of the literature shows no such abundance. There is little in the way of carefully formulated criteria to help the school administrator or teacher, faced with the problem of purchasing or selecting visual materials for his or her classrooms. Similarly, the producer of such materials, whether a commercial firm, a museum extension division, or a government agency such as the W.P.A. has little in the way of reasonably well-established standards to apply, so as to insure the acceptance and saleability of its produce on completion.

What does a brief survey show of the work done to date in devising checklists of standards or criteria for specific types of visual media?

As might be expected, the greatest amount of work has been done in the motion picture.

Dale[5] has developed a set of standards for the selection of motion pictures, which embraces both the technical and educational merits of the medium. Brunstetter[4] has prepared an appraisal form to assist the producer in preparing educational talking pictures. Items relative to the objectives of the picture, its content, development, technical elements, and contribution to other curriculum materials are included with a general rating scale for each item. An elaborate checklist has been prepared by Doane[7] which considers both desirable and undesirable characteristics. He has set up a series of conclusions based upon an analysis of a large number of films which may guide the use of films in a specific subject area. Devereux,[6] Hollis[17] and others have also prepared checklists for evaluating motion pictures. In 1939, the American Council on Education[2] worked

out a detailed appraisal form for use in evaluating the content, construction, and use of films for educational purposes. *Educational Screen*[9] is canvassing the reactions and opinions of six hundred teachers by having them appraise or score a series of films on a specially devised score card.

A very recent checklist on films has been prepared by Lemler[20] which consists of two sections, one relating to use of the film and the other to administrative problems or considerations attending its use. The evaluation of motion pictures for a specific subject has been considered in great detail by Gregory,[13] for the subject of Geography. He has considered both educational and technical merits of a film and his work can serve as an excellent tool for the geography teacher to apply in her use of motion pictures.

Some work has been done with media other than the motion picture. Standards for the use of the still picture are usually associated with the name of Lelia Trolinger[27], who over a five-year period worked out basic evaluation forms. This form consists of two sections, one on technical qualities and the other on educational qualities. Each item in the checklist has been given a specific point rating, in all the technical qualities having a possible total score of 40 points, and the educational qualities having a possible score of 60 points. Teachers may then arbitrarily set a "passing" score for the picture which they evaluate. Others who have written on the still picture are Abrams,[1] Merton,[23] Thralls,[26] Goodykoontz,[12] Melbo and Waterman.[22]

The map as a tool of instruction has recently been given considerable attention by Drag,[8] who developed an evaluation form containing ten points. The criteria consider the making and application of all types of maps for educational usage. The points presented are clear and should be quite helpful. Standards for maps have also been developed by the State Department of Education of Minnesota, and by Eldridge, who has reported his findings in the Thirty-second Yearbook of the National Society for the Study of Education. Grosmuck's[14] article is illuminating and pertinent.

The development of standards for the purchase and use of projectors in the schools of Pennsylvania is the responsibility of the Department of Labor and Industry of Pennsylvania. The department has met this task admirably and has developed a set of criteria which would be helpful in selecting stereopticons, opaque projectors and 16 mm. motion picture projectors. Emmert's[11] article describes the work of the Department. Trolinger's[28] discussion of standards to be considered in selecting projection equipment is quite valuable.

McCall, [21] in his recent book, describes the work of the Joint Committee on Standards for Graphic Presentation, consisting of engineers and statisticians outside the educational field. This committee has developed a set of standards or principles to be adhered to in the preparation of graphs. These do not pertain to the educational use of graphs, but have a guiding value for makers of graphs.

All of these efforts have not yet been coördinated or prepared for widespread use. There is a need for com-

piling this information and making it available to both producers and consumers.

Little evaluation work has been done on the other visual aids, such as charts, film strips, dioramas, manipulative models, plastic materials, and lantern slides. There is a definite need for investigation in these fields to develop standards for the production and use of each type of medium. Perhaps this work might take the shape of a series of checklists of criteria. These checklists could be developed on the best of authoritative opinion, with such objective experimentation as proves to be essential. Both technical and educational merits should be considered. The standards would not be too rigid and would not be *the* set of standards to meet all conditions. Rather *a* set of standards would be developed which should be of value in establishing a concrete foundation for a more widespread use of visual aids.

The checklists or standards should be based upon the opinions of all parties interested in the field of visual education. To be most valuable it is desirable if not necessary, to have the opinions and reactions of producers and distributors of visual aids, the directors of visual instruction departments, government extension department workers, school administrators, classroom teachers, pupils, museum workers, and the scores of supervisors of W. P. A. visual aids projects throughout the country who in many instances have developed new visual media for instruction together with techniques for their use. The schools have had a wealth of valuable material produced for them by the W.P.A. which is badly in need of expert evaluation based upon standards or criteria, before it can be widely adopted for school use.

Steps in the procedure which might be followed in developing such checklists are:

1. To make a careful compilation of all literature in the field of visual education pertaining to standards and evaluation, including scientific researches, published articles, and unpublished articles.

2. To make a careful study of the evaluation procedures used at the present time by school systems throughout the country.

3. To determine the factors or points to receive special consideration in the preparation of the checklists.

4. To contact producers and find out the standards they use in the production of visual aids. It is necessary that the points of view of both producer and consumer be considered, in the developing of the checklists.

5. To prepare a preliminary checklist for each group of media such as museum materials, projection materials, still pictures, graphic materials, etc. These checklists to be evaluated by committees of experienced individuals each of whom has had wide experience in the type of medium being considered.

6. To set up a series of simple experiments if found necessary in solving specific problems as they present themselves.

The checklist of criteria will then be published and made available to producers and consumers of visual education.

A national committee of educators, representing both the producer and consumer points of view, might be organized to serve in an advisory capacity. This national committee could organize a series of evaluation committees, one for each type or group of media to be evaluated. The members of these committees should be persons who would have the time and interest to give to the work that would be required.

The National Committee might also appoint a director and a staff to carry cut the proposed study. In view of the fact that the preparation of a number of checklists is a gigantic undertaking, it may be feasible to complete checklists for one medium or group of media at a time. The first effort might be on the film strip since very little "evaluation" research has been reported on this rapidly developing instrument of instruction.

If such a series of standards could be worked out, the result would be basic to all further developments in the field of visual education. Such a tool for choosing the good from the bad, the useful from the harmful in the ever-growing sea of visual aids being produced is long overdue.

BIBLIOGRAPHY

1. Abrams, Alfred W., "Standards for the Selection of Pictures," *New York State Education,* 19:281:3, December, 1931.

2. "An Introduction to the Evaluation of Motion Pictures in General Education," *American Council on Education,* Washington, D. C., 1939, pp. 4-5.

3. Best, Camilla, "Learning to Use Sensory Aids," *Scholastic,* Sept. 30, 1940—6T.

4. Brunstetter, M. R., "Selecting Educational Talking Pictures, *School Executives Magazine,* 54: 364-5, August. 1935.

5. Dale, Edgar, "Standards for the Selection of Classroom Motion Pictures," Thirteenth Yearbook, *National Elementary Principal,* 13: 344-8, June, 1934.

6. Devereux, Frederick L., "The Educational Talking Picture," *Educational Screen,* Chicago, Illinois, 1938, 220 pp.

7. Doane, Donald C., "What Makes a Good Educational Film?" *Educational Screen,* 15: 203-6, 239-41, 305-7, September, October, November, December, 1936.

8. Drag, Francis L., "Selection and Distribution of Maps and Globes," *California Journal of Elementary Education,* pp. 1-4, August, 1940.

9. Educational Screen's National Film Evaluation Project, *Educational Screen,* 19: 366, November, 1940.

10. Eldridge, Albert S., and others, "Maps and Map Standards," *Thirty-second Yearbook of the National Society for the Study of Education,* pp. 395-405, 1933.

11. Emmert, Wilbur, "Projector and Projection Techniques Improved Through Department Regulation," *Educational Screen,* 18: 66-7, February, 1939.

12. Goodykoontz, Bess, "The Relation of Pictures to Reading Comprehension," *Elementary English Review,* 13: 125-30, April, 1936.

13. Gregory, W. M., "Standards of Geographical Films for Instruction," *Educational Screen,* 19: 95-97, March. 1940.

14. Grosmuck, Erna, "Selection and Evaluation of Maps, Globes, and Charts," Aids to Teaching in the Elementary Schools, *Thirteenth Yearbook of the Department of Elementary School Principals.*

15. Hartley, William, "Evaluation of Films Available for American History," Teachers College, Columbia University, 1939.

16. Hoban, Charles F. et al, "Selecting Instructional Materials" in *Motion Pictures in Education,* H. W. Wilson and Co., New York, 1937, pp. 247-8.

17. Hollis, A. P., "A Score Card for Judging Values of Informational Pictures," in *Motion Pictures for Instruction,* Century Company, N. Y., Chapter 8, pp. 197-207.

18. Jayne, Clarence D., "Standards in Teacher Training in the Use of Visual Aids," *Educational Screen,* 19: 110, March, 1940.

19. Jensen, Herbert E., "Standards of Visual Materials of Instruction," *Educational Screen,* 19: 198-9, May, 1940.

20. Lemler, Ford L., "Finding the Right Film," *Scholastic,* 36-5T, February 26, 1940.

21. McCall, William A., "Measurement," Macmillan Company, New York, 1938, pp. 474-485.

22. Melbo, Irving R., and Waterman, Ivan R., "Pictures in Geography Textbooks," *Elementary School Journal,* 36: 362-76, January, 1936.

23. Merton, Mineta, "Vitalizing Teaching Through the Correct Use of the Still Picture," *Educational Screen,* 16: 115-16, April, 1937.

24. "Sound Recording Equipment for Schools: Central Sound Systems for Schools," *Reports by the Committee on Scientific Aids to Learning,* New York City, April, 1940.

25. "Standards for Geography Wall Maps and Atlases for the Ungraded Elementary Schools of Minnesota," Code 24-B-82, 81 P and: Minnesota State Department of Education, 1938.

26. Thralls, Zoe A., "The Selection and Use of Pictures," *Journal of the National Education Association,* 21: 247-8, November, 1932.

27. Trolinger, Lelia, "Evaluation of Still Pictures for Industrial Use," *Educational Screen,* Chicago, Illinois, 1939, 48 pp.

28. Trolinger, Lelia, "Selecting Projection Equipment," *Educational Screen,* 19: 140, April, 1940.

EDUCATIONAL MOTION PICTURES EVALUATED BY CHILDREN[1]

FLORENCE E. TAYLOR
PENNSYLVANIA STATE COLLEGE

We hear much these days about systematic consumer education but too little about pupils as consumers of instruction. Dr. Taylor, who is Assistant Professor of Education and Director of Elementary Education in Pennsylvania State College, outlines the way in which children may help in the evaluation of motion pictures which are to be used in teaching.

TO use the educational motion picture more effectively as an instructional aid has been the desire of many a classroom teacher. She has recognized the potentialities of the film as a teaching and learning agency, and she has realized that it must be used as an integral part of the curriculum. But how best to accomplish this has been a subject for study among many teachers.

The faculty of the elementary department of the Horace Mann School of Teachers College, Columbia University, made a coöperative study of this question under the leadership of one of its members. Though many problems were met for which tentative solutions had to be found, this discussion will be concerned only with that part of the procedure in which the children played an important part.

At the beginning of the year, the children were told of the proposed study and were invited to assist by giving their opinions of the films seen. They understood that their teachers were trying to find films that would be helpful in their classroom activities. They were glad to coöperate and by their assistance enabled their teachers better to understand the values of the motion pictures to the children.

Whenever a teacher decided that a film was likely to meet a specific need in the classroom better than any other material available, one was chosen from the catalogs. Often this was difficult, for descriptions were usually meager, and evaluations based on use were generally lacking. Upon its arrival, the film was previewed by all of the faculty who were interested in the particular subject presented. As the experimental use of films proceeded, often boys and girls were invited to preview the motion picture with their teachers. The teachers who felt it was worth while for their groups to see the film, invited them to the showing the next day. This interval of time between the preview and the showing gave the teacher and pupils opportunity to decide what points of emphasis would be of greatest significance to them. Children who had attended the preview took an active part in the discussion. Definite questions, stimulated by the discussion, were in the minds of the children when they saw the picture.

Afterwards, the pupils and teacher together made an evaluation of the

1 Adapted from Chapter III, "Some Illustrative Experiences with Films" of "Educational Motion Pictures in the Elementary Department of the Horace Mann School, Teachers College, Columbia University." Unpublished report by the writer on Ed. D. project, Teachers College, Columbia University, 1940.

film. Often questions or differences of opinion arose and the group wished to see the film a second time. A copy of the final evaluation was sent to the chairman, who made a composite record for the school file. As films continued to be used, children showed increased ability to evaluate films, and frequently asked if a suitable motion picture were available for a specific purpose.

In addition to the evaluation of a single film, it was often found helpful to discuss the contributions of many films to the school program. The report which follows is a stenographic report of such a discussion, held with a fifth grade six months after the initiation of the study. During this period the children had seen many films. They had become increasingly aware of the fact that films could and did help them in their school work. The teacher, meanwhile, was learning to what extent the children considered films as learning aids. She was particularly sensitive to the value of the picture from the children's point of view. She felt she gained evidence to supplement her opinion in the discussion which follows.

Teacher: Who remembers the question we were talking about last time?

Student: What made a picture worth while?

Teacher: Anything else?

Student: What was the difference between reading books and seeing a movie?

Student: In the movie you can see the real picture of it, while in the book you can only think of it. Sometimes, there is no picture in the book.

Student: I saw a picture in a book that was like one shot in the film.

Teacher: How did the movie differ from the picture in the book?

Student: It was a real picture.

Teacher: What makes it a real picture?

Student: It moves, and it looks like we really do it.

Student : It is more life-like; it shows how you would be doing it.

Student: The main difference is that the picture moves.

Teacher: Is that a good thing?

Student: I think in a movie there are real people doing it, and in the book they look painted.

Teacher: If you could have the best artist in the world make a best illustration in the world, would there still be a difference?

Student: The movie shows you more than the illustration in your book. The illustration should be a photograph of the real thing.

Teacher: Does the film help you more than just the book?

Class: Yes.

Teacher: Will you then not bother to read many books?

Student: Oh, no. There might be something in the picture you did not understand. They might have left out a few facts. The book might be more accurate; it might give more facts, not only a few important ones, but some not quite so important.

Teacher: Let us think of something that could not be shown in the picture.

Student: In the movie you just have a shot of what people say, but in the book you read about it. People move in the picture and you can see what they do. The book stays there

and the movie just goes away.

Teacher: What difference does it make if the book does stay there?

Student: You can look back any time. When we see a movie a second time it helps, but I think in a book you can check back.

Teacher: What was the last movie we saw?

Student: "The Covered Wagon." That was wonderful.

Teacher: What made that picture worth while? It took a whole hour and a half out of our school day. Was it really worth while in your opinion?

Student: It was a good story and chiefly it showed how they traveled, where they lived.

Student: It showed that they all followed different ways, and did not live in one group.

Student: It showed the rush for gold. They all went together to get it. But not all, for Captain Wingate went to Oregon.

Teacher: Was that the part that made it most worth while?

Student: It showed how they lived, the hardships they had; how the people turned back home because they got homesick.

Student: In the book you could not see how the Indians attacked as you could see in the movie.

Teacher: How many people have pictures in their minds when they read a book?

Student: Everything was true in everything that you could think of; the way they got food and rode the horses — they put it all into one picture. If you saw a picture that showed only hardships, that would not be so interesting; but with hardships and a lot of other things it makes it more interesting. I would feel that it tells the whole story.

Teacher: What else besides hardships might it consider?

Student: Travel and clothes help to hold your interest.

Teacher: Was there anybody that felt a little bored with the long picture?

Class: No one.

Student: I liked the way they crossed the river, how they kept the wagons up. I liked the humor.

Student: Everybody that you saw played an important part, and they did not just have someone who would come in and say something and then disappear. The dialect was not in perfect English.

(Children have since put in backwoods dialect in their stories on Daniel Boone.)

Teacher: Didn't you have that feeling for the dialect by reading?

Student: I don't think you can get a dialect by reading about it. You would see the difference only if you heard it.

Teacher: This was a silent film. Do you like silent films?

Class: Yes.

Teacher: Will you tell us what you think about silent films?

Student: I like sound films better.

Student: You don't have to get sound all the time, you can get a lot of other things from a picture besides talk. Silent films help you to read.

Student: The talking picture is better when there are hard words.

Student: My mother saw the sound version of this picture. She didn't see much difference.

Student: I like silent films. You may not understand a person speaking, but you can read it, and sometimes read it over.

Student: I found the picture passed before I was finished reading the titles. A good silent film should give you time to read.

Teacher: If you had your choice, would you see a sound film first?

Many: Preferred a silent picture first and then a sound picture to see what they missed.

Student: I like sound better, because you can hear the people talk, they can say more, and they have more expression.

Student: In the silent film I could hardly read the captions. But old sound pictures don't have very good sound.

Student: I like sound pictures better. In a silent picture, first comes the person saying something, then the caption. In the sound picture they both come together.

Student: You can have a whole conversation in a sound picture.

Student: I'd rather see a silent picture first and have it in my mind.

Student: In the silent pictures the lip movements are sometimes not the same as the words in the title.

Teacher: Think through the movies you've seen this year. You have seen more movies in school this year than you usually do. Is this a good thing, and why?

Student: It's a good thing, because the picture showed a house and a stockade better than a book, and showed more detail.

Student: It's good to see what somebody is studying about in school —like Daniel Boone or Covered Wagon. They fit in.

Teacher: How did these fit in with your work?

Student: We were reading about crossing rivers and the picture showed it.

(Improved art work was a direct result of having seen "The Covered Wagon" and "Daniel Boone." In one instance it helped a boy finish a picture he had started.)

("The Covered Wagon," the film seen most recently, was voted as the favorite of most of the class; "Daniel Boone," as favorite of two children.)

Student: "Daniel Boone" fitted more into our studies. It stayed on the screen longer. It held to the subject.

Teacher: Did you like seeing it a second time?

Student: Oh, yes. But "The Covered Wagon" mixed comedy, adventure, a good story—it had a little of everything—travel, buffaloes, etc.

Teacher: Which had the best acting?

Student: "Covered Wagon." It was more clear. "Daniel Boone" was blurred in some places. The acting was better in "Covered Wagon." The characters illustrated different moods. It made it very real, as if it were happening for the first time, not planned. They acted like real life.

Student: There was more action in it, anyway.

Student: We weren't sure of some of the things we saw in "Daniel Boone." When he came in and told that Boone had been captured, she wouldn't really faint. There was good acting in "Covered Wagon," where

the arrow was hit. The photography was good. It made me feel like it really happened; it had more life, more plot.

Teacher: What was the important difference between the two?

Student: One was taken in Hollywood, with the right kind of camera, lights, and so on. Yale University made "Daniel Boone." It was accurate but the photography was not so good as Hollywood.

Student: There was a love story in "Covered Wagon." "Daniel Boone" had a story but it wasn't real, like a book.

Student: I wouldn't choose the one with love in it. "Daniel Boone" has facts. I was a little mixed up in "Covered Wagon." In school we want to see pictures that have facts.

Teacher: Could you tell me any other film that has helped you in your work? Any one way in which that film helped you?

Student: "George Washington." We were studying about his life and the Revolutionary War.

Student: "The River." It helped to show how much the Mississippi costs us, what it meant to have the trees all cut down and how floods started.

Student: Not many pictures stayed with me, only the ones I liked. There was one of the dust storm out in the west. It was like "The River," the people cut down the trees, the grass, there were no rivers, and there were dust storms.

Teacher: You mean "The Plow That Broke the Plains." We saw that a long time ago.

Student: "Water Power." It showed how we use water power to make electricity.

Student: The Pilgrims signing the Mayflower contract.

Student: The salmon picture; it didn't fit in, but it was interesting for us to know. We may need it later, or we may need it this year.

Teacher: We have seen about fifteen pictures so far this year, and you say that many of them have been good.

Class: All those? (Surprised that they had seen so many.)

Student: The W.P.A. picture was very good. It reminded us of "The River." (Man vs. River.)

Teacher: Would you think it worth while to see more pictures as part of your school work?

Class: Yes.

The discussion recorded above was typical of many that occurred during the study. Such discussions aided both the teacher and the pupils in realizing the value of the film as a learning agency. Evaluations by children were considered essential in using the motion picture as an instructional aid.

THE ZOO GOES TO SCHOOL

FRANK W. TREVOR
MILLBROOK SCHOOL

The bringing of live animals into the school environment has been characteristic of progressive elementary schools but rare indeed is the preparatory school which enlivens its science program by the establishment of a zoo run and operated by the students. You will find Mr. Trevor's account of the Millbrook School zoo to be refreshingly unique and interesting.

MANY visitors at the small zoo operated by the Millbrook School have expressed interest in the origin and administration of this project, and in the relation of the project to the school program.

The origin of the project lay in the conviction of master and students that the biology work would benefit from the inclusion of more live material. This was not a unique situation, few educators underestimate the value of live material in teaching biology and few students fail to find live material stimulating. Equally few classroom teachers, however, are able to use even a small portion of the live material they may desire to use. The obvious handicaps in providing proper living conditions limit the variety and quantity of live material that may be kept on hand in most schools. The accumulation of live material in this department early resulted in such handicaps, the most serious of them being the difficulty of housing livestock within the classroom confines. Since this accumulation of living plants and animals resulted in the development of a very favorable level of biological interest among a large proportion of the student body, it seemed desirable that some way be found to house and enlarge the live collections.

We were fortunate in reaching an unusual and early solution of the housing handicap. Several parents contributed to a fund for the erection of a small building designed expressly tc house small animals. By the time sufficient money was at hand for the building proper, boys interested in the project had nearly completed the foundation excavations. The fund donated was sufficient to construct the outside shell of a wooden building twelve feet wide and thirty-six feet long. This construction was done at a reduced cost by a parent in the building trade. When the outside of the building was finished, the boys took over the inside construction. Cages of interchangeable type were built, work tables, storage bins and aquarium racks installed, and the painting finished. Grading and planting about the building was undertaken the following spring. The next year a sun porch was added to furnish winter accommodations for more birds.

Though the project originated from biological interests it has contributed in several ways to activities beyond the conventional scope of academic biology. The boys had to put in actual work with hammer and shovel before their project became a reality. This training in practical labor, with the requirement of coöperation and industry, seems to have been a valuable by-product of the project.

From the beginning this project has been an activity and a responsibility of the boys themselves. Construction and painting did not end

with the completion of the building. The unusual use of the building results in wear and tear. Cages must be changed to fit the requirements of new animals, and other cages must be modified often to meet the increased strength and cage-wisdom of growing pets. All these many small jobs that come up are handled by the boys. General maintenance is carried on by the boys keeping animals, with the help of other boys who volunteer for special jobs. The daily janitorial work is done by a rotating squad of boys. This work is the regular task of these boys in the community service plan in use throughout the school. This janitorial work includes the daily clean-up, the checking and supervision of the ventilating and heating of the zoo and the new greenhouse. This task calls for a considerable degree of responsibility.

The attitude toward their jobs shown by most of the boys engaged in this project is very heartening. They feel generally responsible for the whole project, and it is seldom necessary to request aid on any job, volunteers take care of routine and emergency jobs. Dangerous as psychological generalizations are, it seems justifiable to state that among the boys occupied on this project, one of the characteristic benefits of the husbanding of live material seems to be a heightening of the boy's sense of responsibility. Boys whose work in the zoo is at first marred by irregularities and forgetfulness, seldom fail to become reliable. This may be due in part to the daily attention required by the animal in the boy's care, and his reaction to its dependence on him for comfort and even life. Too few years and too few cases have passed for general judgments, but in certain cases this increased sense of responsibility seems to have been reflected in the boy's general record, as well as in his hobby or community work.

The relatively small number of cases under study to date make statements difficult regarding correlations between academic work and this project. General academic improvement in certain cases has seemed to be due in largest part to the boost the boy received from the success and satisfaction derived from work at the zoo. This would, of course, be equally true of any project serving to stimulate confidence and effort. Specific academic improvement has been credited to this project in some cases where boys of average ability have been so stimulated and interested that they have tackled academic work in science with sufficient vigor to achieve credit and honor grades. The interest developed in the zoo has certainly stimulated extra-class reading in natural history. Reports and speeches for English courses have included numbers of papers on mammals, birds and conservation. In some of the past few years so large a proportion of the term speeches centered on natural history topics that it seemed advisable not to encourage as many for the next year. The zoo project tied into extra-curricular work in English through articles in the school paper reporting the activities. A special column, "At the Zoo," has become a regular feature of the paper.

Though the zoo has contributed in many ways to the general school program, it has contributed most to the science work. By far the most valu-

able contribution is the realistic and natural "tone" it has given our biology work. Natural science taught largely from books and preserved specimens frequently seems to lack the broad and inspirational views of the living world that old-time naturalists developed. Often secondary courses seem too set and cold to inspire the student. The functioning of this living project seems in part to balance the tendency of book work to become set, and seems to restore much in interest and freshness. In this respect it would be wrong to give the impression that the zoo work is set aside from other science work. Participation in the activities of the zoo is voluntary, and there is room for only a minority of the boys to participate in steady jobs, but the contribution of both ideas and materials from the zoo reaches nearly every boy in the science courses.

The wealth and variety of illustrative material made available to classwork by the zoo project is surprising. Through the four years of its growth over two hundred species of vertebrates have been on temporary or permanent exhibition. Countless details of structure and function have been shown with living examples. Most of the important taxonomic groups have been represented. In the field of elementary genetics colored rats, mice, rabbits and guinea pigs have been used to illustrate various principles of inheritance. Thirty-six different colors of mice were bred one year to show the interaction of factors. Fish have been used for intergenetic crosses to illustrate hybrid vigor. The aquaria, running as they do from year to year, keep up a wonderful stock of small invertebrates, from protozoa to crustacea. These aquaria also furnish numbers of algae and other aquatic plants at times when outdoor collecting is sparse or impossible.

The zoo project is, of course, not meant to serve as a substitute for field work. It is intended to supplement such work and to make possible the intensive study or culture of some species. The location of the zoo is a great advantage in its use as a base for field work. It is located in an old orchard that affords abundant opportunity for ready observation. A pond and a stream border one side of the orchard. In four years one hundred and sixty-seven species of birds have been seen within sight of the building. Field work, of course, goes on far beyond the orchard.

Projects carried on at the zoo, or carried on in combination between field and zoo, vary in nature and number; new projects have appeared each year. Bird banding in coöperation with the Federal government began last year; and operating from the zoo as a base, over five hundred birds of some thirty species were banded. This fall a half dozen of our banded birds have returned so far. The making of a record of the zoo's inhabitants in colored pictures, motion and still, has been undertaken, and the file of pictures, some of them of considerable educational value, is steadily growing. Pictures of wild birds and mammals taken by the boys have been added to the collection. We hope to have a good series of educational pictures in a few years. These long-term projects are but two examples of the varying phases of work centered about the zoo.

Since the project revolves about the live collections, many visitors express

interest on the source of the higher vertebrates. Material collected directly on field trips constitutes only a portion of our stock. Most of the native birds and mammals are sent or brought in by people who have found them sick, crippled or orphaned. Most of the exotic animals are obtained through animal dealers or are sent as gifts from parents or alumni. Some animals are obtained by the boys while they are on vacation trips, or are purchased by them. Some animals are received by gift from other institutions.

The source of the animal is sometimes in itself of paramount educational value. The birds of prey that come to us crippled by pole trapping or shooting are extremely effective in arousing interest in these persecuted species. Our emphasis on the plight and habits of these species is not based merely on our admiration of them as handsome and useful birds. The study of the misguided persecution of these species leads to the study of their place in nature and eventually to the study of game-management. This is a topic of great current interest, and it serves in turn to bring in many ecological principles. We have not had marked success in trying to teach ecology as a unit in secondary science, but we seem to have had good results in instilling appreciation of ecological principles by bringing these principles into the discussions of many biology topics. Ecology is more in need of emphasis in secondary science today than is any other general biological topic, and no specific group of animals needs emphasis in study as much as our predators.

Through this discussion but one reference has been made to the greenhouse. This is a new project intended to make possible intensive work with plants during the winter and to enrich our plant kingdom studies as the zoo has enriched the animal studies. With the zoo construction experience behind the old boys, we decided to build the greenhouse without professional help. The finishing work is being carried out now, and plants have been growing in the greenhouse all fall. Most of the work, from designing and ditch digging through to setting the glass, was done by the boys and masters. Only the wiring and the installation of the oil burner were done by outside help, and these were done professionally for insurance reasons.

These dual projects seem to have been well worth the time devoted to them. They have not solved all the problems that accrue with the collecting of live material. Along with its many advantages, live material carries one unique disadvantage. It can not be placed on the storage shelf and forgotten for a week or a year like the preserved specimen or reference book. Live material must be fed, watered and properly cared for from day to day. The daily care of live plants and animals does not always fit readily into the daily schedule of the boarding school. This schedule handicap has remained with us and is a problem as yet unsolved in the administration of the project. These projects have solved the severe handicap of housing live material, however, and they have aroused great interest, responsibility and industry among many boys. They have made many contributions to the general school program, and they have been invaluable to the work in natural science.

UNSUPERVISED VISUAL EDUCATION

RALPH ROCHEFORT WHITE
WELD, MAINE

Many states do not have organized visual instruction under the direction of a state department of education or university. The growth and development of visual instruction in the State of Maine is ably described by Mr. White showing how extensive visual instruction is in a state without the impetus given by a central bureau.

WITH an increasingly large proportion of State Departments of Education having organized Departments of Visual Instruction supplied with trained administrative personnel, it is of value to consider the status of visual instruction in states which are attempting to solve their visual instructional problems almost entirely without state or local supervisory assistance. Maine is such a state, and the opinions expressed in this article are the result of a recently completed survey of the use of projected visual aids in Maine secondary schools. Because educational motion pictures proved overwhelmingly to be the most popular projected visual aid, the burden of emphasis in this discussion is placed upon the motion picture phase of teaching. It is presumed that the practices and problems uncovered in this state may be typical of communities where visual instruction is developing with a minimum of supervisory assistance.

Out of the 275 predominantly small high schools scattered over the State of Maine, almost half have the use of motion picture projectors for instructional purposes. The majority of projectors are 16 mm. sound machines. These machines were secured largely through the initiative of ambitious principals who were attempting to modernize their institutions in accord with generally accepted "progressive" innovations. Particularly in the rural areas, the introduction of the machines promised an opportunity to vitalize the curriculum for students whose environment prevented familiarity with highly organized and industrialized urban society.

Presuming that most or many of the potential accomplishments of the educational film will become realities in a school system, it is easy for school principals to depict the values of their school motion picture machines in words of glowing tribute. Motion pictures offer promising opportunities, and it is small wonder that the expressed opinions of principals in Maine unanimously supported the usefulness of their machines.

Perhaps in some communities the mere projection of a few industrial advertising films each month results in some permanent educational benefits. It is certainly true, in a substantial number of schools, that the mere projection of a few industrial advertising films, without any associated learning activity, constitutes the entire visual educational program. In such schools, generally, the teachers have never received any instruction in the procedures for teaching with projected visual aids. It is also generally the case, under these circumstances, that teachers are without ref-

erence books which might recommend techniques for the use of films — or even books to tell where and how to get satisfactory films.

It is not astonishing, therefore, that these inadequately supervised schools with their new mechanical visual aids are accomplishing only a minimum of the educational opportunities which motion pictures open to them. The results of an investigation of the probable effectiveness of the teaching procedures employed in these inadequately supervised schools is revealing.

An analysis was made of teaching techniques for motion pictures deemed requisite by a group of recognized experts on visual instruction. This group included M. R. Brunstetter, Edgar Dale, Ellsworth Dent, F. L. Devereux, Charles F. Hoban, Charles F. Hoban, Jr., Paul Sloate Miller, Lloyd L. Ramseyer, and Gilbert S. Willey. The survey revealed that the possibility of observing most teaching practices which authorities consider imperative is contingent upon following less than half a dozen basic procedures.

In schools where visual education is usually administered without specialized supervision, it is significant to note that these recommended basic procedures are generally disregarded. Less than a fifth of the Maine secondary schools follow the basic procedure of having teachers preview films before they are shown to students. In only a fourth of the schools is the subject matter of films taken up for class study and discussion. A third of the schools follow the objectionable practice of often including three or four films on a variety of subjects in one showing. The substantial majority of schools project their films for the assembled student body rather than for individual classes. A bare six per cent of the schools admit that they follow the essential procedure of projecting teaching films more than one time.

Sufficient comment has already been made upon the inadequacy of teacher training in the use of visual aids, but what are the other preponderent difficulties encountered by schools which find it necessary to organize and administer their visual aid programs without supervisory assistance and encouragement?

In the expressed opinions of the secondary school principals, the most serious handicap in the visual instruction programs is the lack of budgetary provision for visual aids. Obviously, this difficulty is not a unique one, but the significance which principals attached to it in this instance is worthy of more than passing comment. Eight out of ten principals rated this as the foremost handicap to their visual instructional programs, and nineteen out of twenty rated it as among their most pressing problems. It should be noted that this is not a problem of securing sufficient funds to purchase comparatively expensive projection equipment. The schools under discussion already have such equipment. It is the problem of securing minimum allocations of twenty-five to fifty dollars per year for the rental of films.

The final major obstruction to satisfactory programs of film instruction is the difficulty in selecting films to meet the needs of the schools. Nearly

seven out of ten principals find this to be a serious problem.

Among the suggested services which principals most frequently indicated would be helpful are the following: expert evaluation of educational films and other audio-visual aids, demonstration lessons in schools by visual instruction specialists, and lesson plans to show how audio-visual aids may be correlated with courses of study. The numerous other services which were suggested by a significant number of schools indicate that perhaps any kind of assistance is welcome.

These are the visual instruction problems of schools in a state whose educational organization lacks adequate supervisory assistance in the field of visual education. It is no solution to the problems of these schools to remark upon the obvious and observe that the schools need a state department of visual instruction and local supervisors of visual instruction. Other factors than necessity enter into the problem of securing increased allocations of public funds for educational supervision. However, anticipating the probable future allotment of additional funds, effective steps may be taken to mitigate present difficulties. None of these possible effective steps needs to entail increased expenditures.

School boards are not niggardly in the allotment of funds for traditional school supplies, for athletics, or for extra-curricula activities in communities where sufficient popular emphasis has been placed upon these phases of education. The necessity for their support is accepted. It is not unreasonable to anticipate that the small effort of emphasizing visual instruction at state and county teachers' conventions would go far toward giving the program sufficient prestige to secure financial support in local communities. To a limited extent, this effort at conventions would abet the solution of the problems arising from the lack of teacher training in the use of visual aids.

Concerning the inadequacy of teacher training, too much can not be demanded of the traditionally conservative teacher training institutions by expecting them to supply teachers who are trained and experienced in each new innovation in education. Certainly, a considerable number of high school teachers never specifically train for their work anyway, but rather drift into it. On the other hand, teachers already in the field may well be advised by administrative personnel to take advantage of summer school courses in visual instruction methodology. In the State of Maine where this study was conducted, two colleges and one normal school offer summer courses in visual instruction, though a considerable part of the enrollment in these courses is taken up by students from neighboring states.

The selection of appropriate visual instructional material, ordinarily a difficult task without special training or supervisory assistance, may be made easier for many schools by the organization of coöperative film libraries. A coöperative library, typical of others throughout the country, was organized at the University of Maine a few months ago, shortly after the general findings of this survey of

visual educational problems were first made available to the public. The University, supplied with a good quality though not extensive library of films, invited schools in the state to purchase films for deposit in the central library and, in return, share with all the use of the large collection. Films are purchased with the income from a $100.00 fee covering the expense of membership for the first two years. The fee may be paid in two yearly installments. With this money, a committee of principals, chosen by member schools, selects and purchases new additions to the library. At least two films are purchased as the property of each member to be loaned to the coöperative. In return for this fee, and without any additional charges, each member school is entitled to the use of two films per week for thirty weeks per year. Schools are entitled to use each shipment of films for three days. The University, with the probable assistance of students employed by the National Youth Administration, will record, check, repair, store, and ship all films. In return for maintaining the library, the University retains the privilege of using any film at any time when it has not been requested by a member school.

Finally, in the absence of adequate state or local supervisory assistance, schools may do well to subscribe, for a small fee, to some of the services of the Association of School Film Libraries.[1] The latter is a non-profit organization financed, for the time being, by a grant from the General Education Board, a Rockefeller foundation. The functions of the association include the maintenance of an information service on specific questions in the field of visual education. A regular news letter is published on information of general interest. Special foreign and domestic films not available to the general public are made available to members. Members are assisted and advised in the organization of coöperative libraries. Finally, and perhaps most valuable, members have the use of a cumulative catalogue listing, reviewing, and evaluating selected educational films. The detailed reviews have been prepared and copyrighted by the Motion Picture Project of the American Council on Education. Out of the many thousands of films reviewed by this committee of impartial educational specialists, only the admittedly superior films were selected for inclusion in this extraordinary publication. Two volumes of reviews have thus far been published, one in November, 1939, and one in June, 1940. Although other film lists are available, there is, of course, no other comparable publication in this field.

The administration of unsupervised visual education is not an easy task and certainly its record up to this time has not been encouraging but its future is not hopeless. The growth of the coöperative libraries and of the Association of School Film Libraries are heartening signs. It may be expected that such organizations as these may continue their usefulness even after adequate state and local supervision has been organized in communities which now lack this assistance.

1 Association of School Film Libraries, Time and Life Building, 9 Rockefeller Plaza, New York, N. Y. R. Y. Miller, Secretary.

FIELD TRIPS DEVELOP COMMUNITY INTEREST

LAWRENCE R. WINCHELL
VINELAND PUBLIC SCHOOLS

There is no type of activity in visual education which is more intriguing nor has higher standing than the field trip. Long before motion pictures were thought of field trips were used by progressive teachers. Dr. Winchell has outlined the manner in which the field trip has been used to advantage in the Vineland schools. There is no better way for young people to learn about their community than through the type of activity outlined in this article.

EXCURSIONS are valuable because they help the pupil to come into real contact with his immediate environment and to gain a better understanding of it; they suggest activities which may lead to other experiences; they supply a basis for content material which develops in the classroom; they settle debated points or verify conclusions; and lastly, they give information. Field work not only vitalizes school work and relates it to life outside the classroom but also offers opportunity for good citizenship training. One must keep in mind that a field trip can be a waste of time. Its results may range from good to bad. A field trip should not be a mere picnic nor an opportunity to get outdoors for a few hours of relaxation. It should be a purposeful activity, preceded by careful planning, and followed by class study.

Pupils should have reached that stage in the development of a lesson where they feel an urgent need and desire to take a field trip. The teacher should be familiar with the place to be visited, and before starting there should be a discussion of the things to see in order that the class have a definite purpose and plan. During the trip pupils in the upper grades should take field notes in order to develop the habit of recording their impressions neatly, effectively, and pointedly. While on the trip there should be systematic discussion and study in order that definite problems may be solved and correct emphasis placed. After returning to the classroom definite use should be made of all information gained.

I should like to illustrate what has been said by means of a unit of work done by two of our eighth grade geography classes on the industries of our community.

Early in our discussion of local industries the two classes came to the conclusion that the best way to learn about the factories was to see them in operation. The idea was very pleasing to them and they set to work with a will to prepare for these visits.

We prepared a list of all the industries in Vineland and found that they were grouped into the following classes:

A. Clothing factories
B. Glass factories
C. Canning factories
D. Poultry farms
E. Fruit farms
F. Agricultural equipment plant
G. Electric and water power plant

We decided for our purpose it would be enough to visit one of each type. We had no trouble in arranging for our visits with the owners of those plants we wished to see. We found all of them cordial and helpful, and their attitude made an impression upon the children when they found

that for the owners our visit meant a loss of money in slowed-up production.

Before making each field trip we discussed the purpose of our visit and prepared an outline for our observations and questions as follows:

I. Reasons for location in Vineland.
   A. Why did you locate in Vineland?
   B. Is the location still suitable?

II. Raw materials.
   A. What kind of raw material do you use?
   B. Where does it come from?
   C. Is it affected by tariff?

III. Labor.
   A. How many people do you employ?
   B. Are the majority of workers men or women?
   C. Are the workers skilled?
   D. Are there safeguards for workers?
   E. Are there compensation laws?
   F. What is the salary scale?

IV. Method of production.
   A. Is the work specialized? (Describe the steps.)
   B. What types of machinery are used?
   C. Is the work begun and completed on the premises?

V. Transportation.
   A. How is the product sent from Vineland?

During each visit the children answered the questions as well as they could from observation, and then in a group were given an opportunity to ask those questions which they had not been able to answer for themselves. They were very well behaved and business-like and made an excellent impression on those with whom they came in contact.

During the six weeks we were able to visit five plants. The classes were divided into groups, each group taking a phase of community life as follows: Education, religion, recreation, and transportation. Each group carried on individual research. We then prepared a book on Vineland. Besides this, the children had made their individual booklets on the industries and had a large map showing the location of all factories in town.

What were the values derived from these visits?

A. They left permanent vivid impressions.

B. They supplied facts not secured by reading.

C. They gave interest and variety to work.

D. They provided vocational sampling.

E. They gave an opportunity to teach and to use good manners.

F. They gave an opportunity to discover new problems.

G. They gave an opportunity to develop a critical attitude.

I doubt very much whether those children now remember or will remember most of the things they learned that year, but I do know that they will not forget the facts they learned from their excursions to the local factories and farms. I feel certain there is no more stimulating and interesting means of learning than a well-planned field trip.

EDITORIAL

PHYSICAL TRAINING TO FIRST BASE AND BEYOND

CARL G. MILLER

MILITARY men in charge of training camps are about to tell us again how much improvement young Americans can make in their physical condition. They have scarcely begun this exposition as yet, because not enough time has been given for their discoveries, but it is pretty safe to deduce such a forthcoming statement from the major premise that similar events of World War history will repeat themselves. The army experts found a flabby condition in 1917, and they will find another now. Except for some well-nurtured farmer boys, a few athletes, and a few others on whom Nature most liberally bestowed a blessing of health and strength, the charge will be that young Americans are a sad population unit of cigarette-smoking, luxury-loving, liquor-drinking, spectacle-watching (yes, and spectacle-wearing), automobile-riding "softies." Then some will say: "Why don't the schools do something about it?"

Most educators probably will admit that the schools ought to improve the physical training and health programs. There are some shrewd ones who would jump at the opportunity to make reforms and have been waiting for a public opinion to support the change.

And why do they need public opinion?

Educators know, in the first place, that the public for a number of years has been in a lethargy concerning physical stamina. With reference to strains on their constitutions, the people have been getting along fairly well. Without undue fatigue they have been able to turn on and off the switches on the machinery, manipulate the levers, and walk a few blocks. But they have got along because there has been slight demand on the power and endurance of their bodies. There has been no need for groups of men to march twenty miles in one day, live on reduced rations, or endure sleepless nights; otherwise, weaknesses would have been noticeable.

Educators need, in the second place, public opinion to support the cost of a real physical training program, for, even with certain economies that the curriculum change would bring, there would be a very considerable expense. Offhand, most of us could guess that such a procedure would call for about triple the number of coaches and physical training teachers that we now have. School buildings would need thorough remodeling to supply the training space that winter weather would necessitate. Imagine a really effective physical training program without the minimum of a spacious gymnasium for both boys and girls, without comfortable, spacious locker rooms, without adjoining rest rooms, medical rooms, and the like! Then for the best of the training program —the outdoor schedule—most schools

would need to multiply their campus and playground space several times.

Very few, thinking through such a program sensibly managed and grounded certainly on the principle that physical training should be a daily engagement—very few, the writer hazards saying, would deny that it would be worth the cost. What adult will not admit that happiness in life is based largely on healthy bodies? What parents would be niggard of their money to support a thorough-going physical training program if they could see healthy resistant bodies developed in their children? But, whoever tries it, should heed this friendly warning: The program must get results as plain as the noses on our faces, and it must be largely fun for those who take part—far more fun than sitting in the study hall and preparing an algebra lesson for the next day.

DEPARTMENT OF BOOK REVIEWS

Audio-Visual Aids to Instruction. By *Harry C. McKown* and *Alvin B. Roberts.* McGraw-Hill Book Company, New York. 1940. Pp. xiv + 385. Illustrated. $3.00.

There has been a considerable increase in the number of mechanical teaching aids available for use in schools during the past decade. This has caused a shift from the old "visual education" terminology to more inclusive labels; hence, the appearance of such terms as "audio-visual," "visual-auditory aids," and "scientific aids to learning." Mechanically reproduced sound has made it possible for schools not only to use teaching material of a non-verbal nature which appeals mainly to the sense of sight, but also "materials" which are to be heard. It is in keeping with the trend of events that a comprehensive description of these new materials and an exposition of their use in the classroom should be prepared and published in textbook form. In fact, in order for the modern teacher to keep informed with respect to these new instructional materials the need for such a book became a *must.*

Messrs. McKown and Roberts tackled this problem in a practical manner. They have avoided long expositions of theory and have centered their attention upon the selection, organization, and utilization of audio-visual aids of all types in all areas of the curriculum at all levels from the kindergarten through the high school. Following a brief editorial introduction by Professor Harold Benjamin of the University of Maryland the first three chapters deal with the scope, functions, and principles of the use of audio-visual aids in teaching. Chapters IV to X inclusive deal with a thorough exposition of the nature and use of different types of teaching materials such as objects, specimens, models, graphic materials, unprojected pictures, projected still pictures, the motion picture, school trips and auditory aids. Chapters XI to XIII inclusive outline the principles underlying the successful use of teaching aids in the lower grades, upper grades, and high school. Chapter XIV deals with the administration and supervision of audio-visual materials and Chapter XV takes a look into the future under the title of "What Next?" The book is concluded with a final Chapter XVI on sources and equipment.

Throughout the book one will find a considerable number of excellent illustrations which point up the understanding of the text. Many sample lessons are included in the three chapters which outline methods of using teaching aids at the various grade levels. To illustrate the practical manner in which the book handles its subject one notes that such items as the cost and "length of life" of materials are given.

Audio-Visual Aids to Instruction is more than a handbook. It is packed from cover to cover with tested ideas which will serve teachers everywhere in their efforts to vitalize instructional procedures. —F. D. McC.

Visual Method in the Church Curriculum. The International Council of Religious Education, Chicago. 1940. Educational Bulletin No. 901. Pp. 59. 35 cents.

Teachers in church schools are keeping pace with their colleagues in the public schools by making use of audio-visual materials. Evidence of this fact is to be found in a monograph which was developed coöperatively by the Protestant Evangelical Forces of the United States and Canada and is intended to be a guide and handbook for teachers in Sunday Schools and directors of religious education in churches. The bulletin is divided into two parts; the first one dealing with the selection and use of visual aids, the second with the available visual instruc-

tional materials and their types and sources.

Throughout the monograph the writing indicates how these materials may be used in a practical manner in religious work. An excellent feature of the listing of films is the description under each film indicating its application in the church school program. Furthermore, each film is rated as to content and technical quality. Cross-references in accordance with various subject matter headings are given for many films. The bulletin is concluded with a tabulation of available sound and silent films alphabetically arranged as to title. The distributors of each of the films together with the cost, number of reels, and in many instances the length of time it takes to show them are given. This booklet should be of great value to those who are struggling with the practical application of audio-visual materials to the church school program. It fills a long-felt need for information of this type.—F. D. Mc.

Selected Films for American History and Problems. By *William H. Hartley.* Bureau of Publications, Teachers College, Columbia University, New York. 1940. Pp. ix + 275. $2.25.

One of the greatest problems which confronts the teacher in planning to use visual materials is to know where to obtain those aids which will make a real contribution to the work of the class. While there are many source lists available, they are for the most part too encyclopedic and are lacking in reliable evaluations and descriptions of the materials. Obviously, it would take considerable expense and a large staff of workers to compile complete information about all the aids available for use throughout the entire curriculum. However, by concentrating upon one of the larger subject matter areas it is possible for one to accomplish much that is of value and this William H. Hartley has accomplished in his study of films which are available for use in teaching American History, problems of democracy, civics, geography, and correlated courses.

In Part One he gives directions for obtaining, evaluating, and utilizing motion pictures in teaching. In this 62-page section one will find a thorough exposition of the types of films which are available, how they may be effectively used in accordance with the best theory and practice, and how to judge their value. Each chapter contains a good annotated bibliography.

The second part of the report is a catalogue of the best films available. Not only are the title of the film and its source and cost indicated but a rather complete description and evaluation of it together with its grade placement are indicated. The films are listed under headings which correspond to the major subject matter units in the social studies. A complete list of sources and an evaluation check list conclude the study.

Teachers of the social studies in the elementary school, junior high school, and high school will find this book to be of value not only as a handbook of information but as a guide in outlining their visual instruction program. In planning the production of films for school use there has been in recent years a more conscious effort to create films which are timeless; in other words, films which are not outdated soon. However, teachers find many films to be "too old" for effective instruction under certain conditions. One of the features of Mr. Hartley's catalogue is the fact that the production date of each film is given so that the teachers in selecting the film will know in advance whether or not it is an old or a new film.

Selected Films for American History and Problems is a welcome addition to the ever-growing literature in the field of audio-visual education.—F. D. Mc.

Sound Recording Equipment for Schools. By *Karl S. VanDyke* and *R. L. Brown.* The Committee on Scientific Aids to Learning. New York. 1940. Pp. 52. Single copies free on request.

Central Sound Systems for Schools. By *W. M. Hall* and *Paul C. Reed.* The Committee on Scientific Aids to Learning, New York. 1940. Pp. 69. Single copies free on request.

Broadcast Receivers and Phonographs for Classroom Use. By *John V. L. Hogan* and *R. M. Wilmotte*. The Committee on Scientific Aids to Learning. New York. 1940. (Third printing.) Pp. 75. Single copies free on request.

One of the most notable contributions to audio-visual education during the past five years has come from The Committee on Scientific Aids to Learning. Its investigations as a Committee of the National Research Council have been financed by the Carnegie Corporation of New York. The Director of the Committee is Dr. Irvin Stewart and its Chairman is President James B. Conant of Harvard University. Among the studies which have been made under the direction of The Committee three are reported in the publications listed above. In undertaking these studies of sound recording equipment, central sound systems, broadcast receivers, and phonographs for school use The Committee specifically investigated them from the point of view of physical performance in schools in order that school administrators would be helped to intelligently select the equipment best suited for particular purposes. Every effort was made in these studies to secure the coöperation of the manufacturers of equipment as well as to examine into the way in which this equipment performs under the acid test of school conditions. While reports of studies of this type would of necessity contain a certain amount of technical verbage, yet the authors of the three reports listed above have succeeded to a remarkable degree in writing their reports in language that can be easily understood by lay readers. Furthermore, each report makes specific recommendations as to the equipment which performs best under school conditions. Hence, administrators and directors of audio-visual programs will find such information of inestimable value.

Messrs. Van Dyke and Brown in reporting on *Sound Recording Equipment for Schools* divide their study into five sections. The first serves as an introduction and covers such topics as the novelty of one's own voice, some applications of sound recording, and equipment development problems. Section two deals with the general principles of sound recording. Section three discusses present-day recording methods. Section four describes units of direct disc recording systems. And, finally, the fifth section compares commercial recorders and their performance. It is the fifth section which contains most of the data which will guide school officials wishing to invest in recording equipment. One notable conclusion of the report is that none of the recorders in the lower-price group when judged by the performance obtainable in the fall of 1939 has little place in serious education work.

In like fashion Messrs. Hall and Reed have made a thorough study of *Central Sound Systems for Schools*. Their report is divided into four sections. The first outlines the functions of central sound systems in schools. This chapter was prepared by Mr. Reed. Sections II, III, IV, prepared by Mr. Hall, deal with facilities provided by central sound systems, technical characteristics of sound systems, and finally sample specifications for a school sound system. Space does not permit a further description of the report. However, one cannot help but be impressed by the value of the conclusion reached and the value of the specifications set up for a school sound system. Schools planning to install such systems cannot afford to be without a copy of this study.

The report on *Broadcast Receivers and Phonographs for Classroom Use* by Messrs. Hogan and Wilmotte has already reached its third printing due in part to the widespread demand for it. The present report has been revised to take into account comments from educators and others. "It contains a general discussion of the factors which should be considered in the selection of broadcast receivers and phonographs for classroom use." The purpose of the study is to advise schools as to specific models and equipment which will best serve their purposes. The report covers in its several sections the following topics: "The Quality of Reproduc-

tion," "Broadcast Receivers," "Phonographs, Radio-Phonograph Combinations and Phonograph Attachments," "Equipment for the Rural School," "Some Underlying Engineering Considerations," and "Improvement of Classroom Acoustics." It answers such questions as "What is a simple way of comparing receivers?" "What factors influence quality?" "How much volume do you need?" "Where should the loudspeaker be located?" "What devices are essential in a classroom receiver? and which are unnecessary?" Like the report on *Central Sound Systems for Schools*, the authors outline a set of specifications covering broadcast receivers.

The Committee on Scientific Aids to Learning is to be commended for the thorough manner in which it has attacked these problems. If these reports are carefully studied and their recommendations put into practice, school administrators will not only get more for the school's money but will have the satisfaction of knowing that they have acted intelligently in reaching their decisions—F. D. Mc.

The Pivotal Problems of Education. By *William F. Cunningham.* The Macmillan Company, New York. 588 pages. $3.00.

The Pivotal Problems of Education is as the sub-title says, an introduction to the Christian philosophy of education, but the book also outlines objectively other philosophies of education. The Christian philosophy discussed is that of the Catholic.

The author, Dr. William F. Cunningham, professor of education at the University of Notre Dame, prepared this volume especially to be used as a text in educational philosophy. In his preface he explains how the book may be used in certain other education courses. Before publication, the author tested the work by using it four years in planographed form.

Students and teachers will find this book very useful to get the Catholic's point of view in education. How the Catholic strives to educate man from his "fallen state" is interestingly shown. As Dr. Cunningham says, the philosophy of the Catholic is supernaturalism, which aims at: (1) Christian perfection here below and (2) life with God hereafter.

The Notre Dame professor's book is successful in selecting for examination most of the important issues of American education. When the author is discussing, non-Catholic education, he shows no perceptible bias.

Chapters are well developed discussions. Each begins on the right-hand page and has pertinent quotations from educators of all denominations on the left. Among non-denominational educators frequently quoted throughout the book are Hutchins, Butler, Chapman, Counts, and Dewey.—CARL G. MILLER.

A Hundred Years of Economic Development in Great Britain. By G. P. *Jones* and *A. G. Pool.* The Macmillan Company, New York. 1940. 420 pages. $4.50.

In this volume an attempt is made to depict the economic character of what may be termed the greatest century in British history—the last one hundred years. For convenience, the account is divided into three parts, covering broadly the periods 1839 to 1875, 1875 to 1914, and 1914 to the present. Developments in transport and communication, the improvement in agriculture, changes in the technique and structure of the chief industries, in the organization of credit and of business, and in the relations of labor and capital are traced. The volume is objective and comprehensive. It is about as fine a volume in its field as has yet appeared.—WILLIAM P. SEARS, JR., New York University.